



The Journal of Diving History



Volume 19, Issue 4

Number 69, Fall 2011



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FEATURE STORY

A HISTORY OF DESCO: 75TH ANNIVERSARY, 1937-2012

By Leslie Leaney.....10

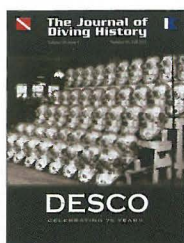
From the middle of the 1800s into the early 1900s two East Coast companies steadily grew to dominate the manufacture of traditional deep sea diving equipment in the United States of America. Those companies were Andrew J. Morse of Boston, and A. Schrader of New York. Their domination of the market endured through to the outbreak of the Second World War, which gave a small Milwaukee-based company an opportunity to compete with them. The Diving Equipment & Salvage Company Incorporated, or DESCO as it became known, entered the market and within a three year period from 1942 to 1945 established itself as the dominant American manufacturer of diving equipment. Founded in 1937, DESCO celebrates its 75th Anniversary in 2012, and this article covers part of the company's history.



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ON THE COVER DESCO MARK Vs

Five rows of U.S. Navy Mark V Air helmets lined up for a photograph during WWII production at DESCO. Photo courtesy Leslie Leaney Archives.



Getting Ready for The Big Two-Oh

This issue comes as the Society advances into its 20th year and we are happy to present another diverse chapter of diving history from domestic and overseas writers.

As HDS prepares to celebrate its 20th Anniversary, we are pleased to be able to publish part of the history of Diving Equipment & Supply Company of Milwaukee, or DESCO as it is known inside the trade. Formed in 1937, the company celebrates its 75th Anniversary in 2012 and continues to manufacture the equipment of the traditional deep-sea diver. DESCO will be familiar to all Society members as they were one of the five Founding Corporations of the Historical Diving Society USA back in October of 1992. They became a Founding Sponsor of the *Journal* in 1998 and have continued their support of the Society every year since. DESCO's origins are set in arguably the most creative period in American diving history, as the company founders developed a mixed gas scuba system that they dove to 420 feet in 1937, and also free-swimming demand scuba systems from the late 1930s through World War II.

The Society transitioned into its 20th year at one of the busiest times in its calendar. The annual HDS Conference at the Mariner's Museum in Newport News, Virginia and the annual HDS Great White Shark Fund Raising Dive at Isla Guadalupe off Mexico's Baja Peninsula both took place in October.

These programs were immediately followed in November by the Diving Equipment & Marketing Association's show in Orlando, where the Society staffed three booths.

In this issue we report on the Conference, which produced an interesting speakers' program that was still not finalized the day before the Conference due to various emergencies. New York-based members Jan Raber and Bob Rusnak played critical roles in saving the day.

Also in this issue we revisit the popular German vintage dive event in Lake Marx. This year a large contingent from HDS Czech Republic attended and brought with them numerous regulators and equipment that had not been seen by many divers outside of that former Communist Bloc country.

In an example of how closely connected all the Historical Diving Societies are, Ed LaRochelle's article on O₂ Diluter regulators in issue 67 of the *Journal* had resonated very strongly with Peter Katz, who was part of the Czech contingent. Peter displayed what was the Czech equivalent of a Diluter, the KP 14 regulator. The outcome of our discussions about the similarities of these aviation regulators is Peter's article on the KP 14, entitled *Luftwaffe Below in the Wild Wild East*. I am certain that anyone who has tried their hand at home-made equipment will enjoy this article, which is very well illustrated with some unusual pieces of Czech-developed equipment.

Onwards into 2012!

—Leslie Leaney, Publisher

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MAGAZINE STAFF

Leslie Leaney, *Publisher & Executive Editor*
Nyle Monday, *Senior Editor*

COLUMNISTS

Peter Jackson, Ed LaRochelle, Leslie Leaney,
Sid Macken, Nyle Monday, Jim Vorosmarti

CONTRIBUTING WRITERS

Steve Barsky, Dorothy Barstad, David Dekker, Peter Dick,
Brett Gilliam, Leslie G. Jacobs, Michael Jung, Leon Lyons,
Terry Maas, Janice Raber, Philippe Rousseau

INTERNATIONAL SOCIETY EDITORS

HDS USA — Leslie Leaney
HDS CANADA — Phil Nuytten

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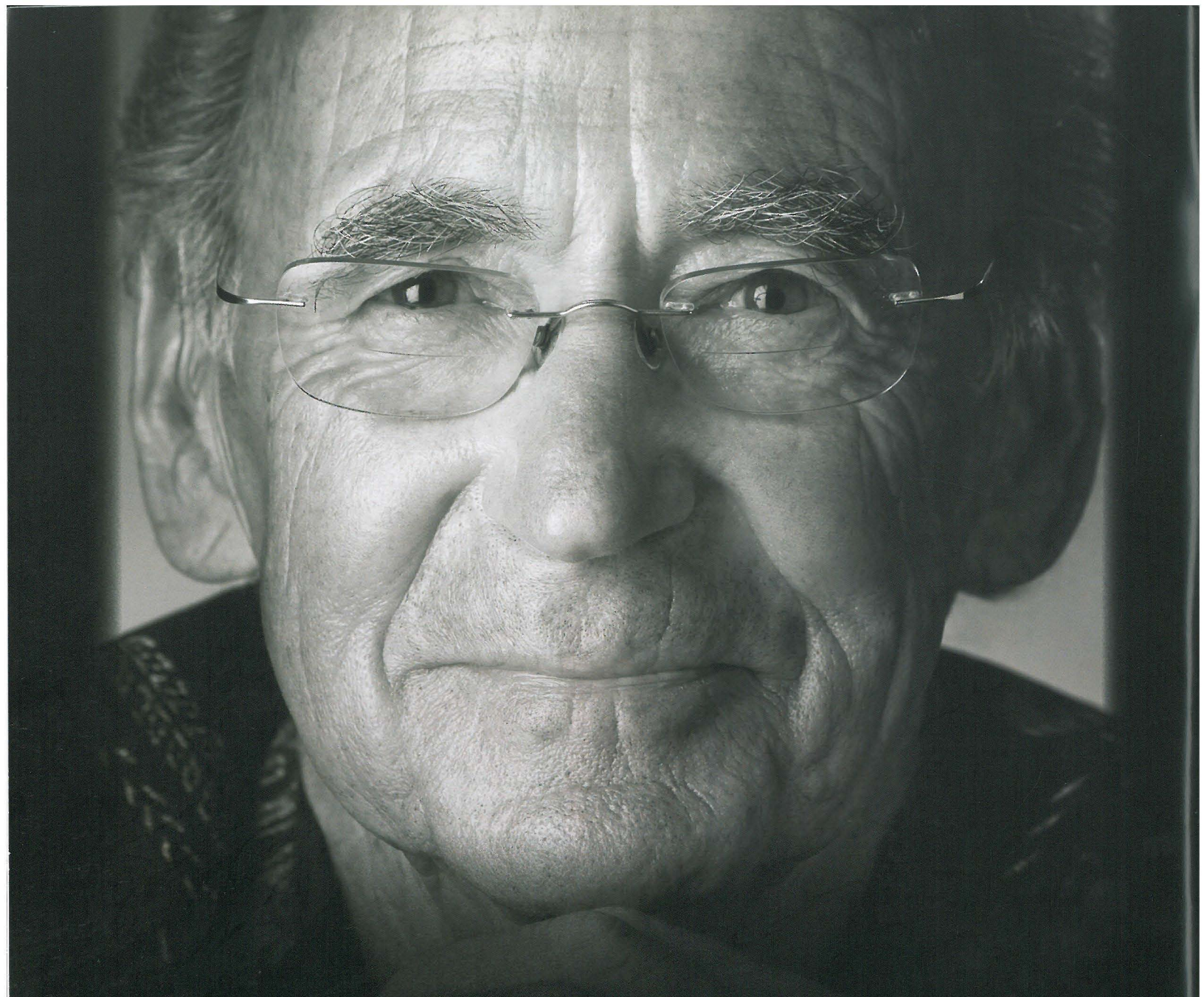
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The opinions and views expressed are those of the respective authors and are not necessarily the opinions and views of the Historical Diving Society USA. Diving is a potentially hazardous practice and if practiced incorrectly, or with incomplete planning and procedures, can expose a person to considerable risks including serious injury or death. It requires specialized training, equipment and experience. THE JOURNAL OF DIVING HISTORY is not intended as a substitute for the above or for the diver to abandon common sense in pursuit of diving activities beyond his or her abilities. THE JOURNAL OF DIVING HISTORY is intended as a source of information on various aspects of diving, not as a substitute for proper training and experience. For training in diving, contact a national certification agency. The reader is advised that all the elements of hazard and risk associated with diving cannot be brought out within the scope of this text. The individuals, companies and organizations presented in THE JOURNAL OF DIVING HISTORY are not liable for damage or injury, including death, which may result from any diving activities, with respect to information contained herein.



A Reason For Giving

Dear HDS members,

The Historical Diving Society is my favorite non-profit organization, and today there are thousands of entities working to protect everything. The Mission of the HDS is to preserve our diving heritage!

My giving to HDS is to "Give Back" a portion of my life's journey within the sea. It was photography that brought to light the true Ocean Planet, and we divers have a bond that reaches deep within our soul, and I treasure the global friendship that being connected brings.

We can all enrich our lives by supporting the future of the HDS.

May my gift of \$100,000 in support of the HDS's vital mission reach out to others whose journey has been akin to mine. My gift is given without restrictions as I know the Board of Directors will make the best use of my journey along the way.

My best wishes to you all,
Ernie Brooks II
Santa Barbara, California
December 2011

HDS Director Carl Roessler Receives The Bonaire Lifetime Achievement Award

HDS Director Carl Roessler is the recipient of the 2011 Bonaire Lifetime Achievement Award. The Award is

sanctioned by the Bonaire Department of Tourism and presented at an evening ceremony at Captain Don's Habitat on Bonaire.

Carl traveled to Bonaire with family members and diving industry friends to receive the award, which is part of the Bonaire Dive Into Summer Program.

The ceremony featured a welcome by Ms. Lillian de Geus, and the award was presented by Ms. Lara Chirino, the Bonaire Director of Tourism.

A highlight of the evening was having Captain Don Stewart join the award ceremony. Captain Don, now 85, regaled the audience with tales from Carl's three

years collaboration with him on the early moves to enshrine conservation in Bonaire's development plans. The event

was covered by a group of American-based diving travel writers who were with Stephanie Worth of Adams Public Relations of New York.

With longtime friend Captain Don Stewart, Carl was one of the earliest voices

promoting sustainable diving on Bonaire. He also actively promoted Bonaire's beautiful reefs through a variety of photo articles in *Skin Diver Magazine*, and he brought top dive manufacturing companies to Bonaire to make a promotional film on the wreck of the *Windjammer*. He logged over 100 dives on the wreck.



Paul Roessler

Carl is an internationally recognized pioneer of the dive-travel industry whose services were rewarded by induction into The International Scuba Diving Hall of Fame and the NOGI Award from the Academy of Underwater Arts & Sciences. He is now retired from the diving industry and volunteers his time to the Historical Diving Society, The International Scuba Diving Hall of Fame, and *The Journal of Diving History*.

The Award honors long serving, high performance professionals whose careers have truly made a difference for Bonaire. It is for achievement over a period of several years rather than a single contribution and it is awarded for achievement that distinguishes the individual's work and provides a legacy for future generations. Sylvia Earle and Eugenie Clark are previous recipients of the award.

The Award Week's host hotel was Captain Don's Habitat Bonaire, and Continental Airlines is the official airline sponsor of Bonaire Dive Into Summer.

For more information on Carl's career visit www.divexpert.com.

Leslie Leaney Receives HDS E.R. Cross Award

The Board of Directors of the Society are pleased to announce that the recipient of the HDS E.R. Cross Award for 2010 is Leslie Leaney. In announcing the award the Board referenced

Leaney's service in co-founding the HDS with Skip Dunham in 1992, and founding what is now *The Journal of Diving History* in 1993.

Leaney has served the HDS since its founding, contributing thousands of volunteer hours in numerous areas of the Society's administration. Sponsorship and fundraising programs introduced by Leaney have raised in excess of \$1,000,000 for the Society.

Leaney played a vital role in many of the major developments during the Society's 20 year history, including the strategic HDS affiliations with the Association of Diving Contractors International (ADC), the Diving Equipment and Manufacturing Association (DEMA), the Professional Association of Diving Instructors (PADI), the Divers Alert Network (DAN), the Beneath The Sea (BTS) non-profit corporation, and the Santa Barbara Maritime Museum (SBMM).

The Board of Directors congratulates Leslie on this significant recognition of his service to HDS.



©2010 Sylvia Earle

HDS Chairman Dan Orr Inducted into Divers With Disabilities Hall of Fame

HDS Chairman Dan Orr will be inducted into The Divers With Disabilities Hall of Fame in 2012. The Hall of Fame is part of the Dive Heart program for divers with disabilities, which Dan has been a supporter of for many years.

The recognition was partly due to the early work Dan did training and certifying divers with disabilities back in the early 1970's at Wright State University in Dayton, Ohio. Noted Dan, "My philosophy has always been that we should be defined by our abilities not our limitations."

In addition to being Chairman of the HDS Dan is currently the President of the Divers Alert Network (DAN). During his over 20 year tenure at DAN, he has helped DAN focus on its mission to help divers in need worldwide while promoting successful business and administrative practices. As a result, DAN has grown to be one of the most successful organizations in our industry while living up to the expectations of its members and supporters.

Our congratulations to Dan on this significant recognition. For more on Divers With Disabilities visit www.diveheart.org.



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210 Ft. Caisson Dive, 1959



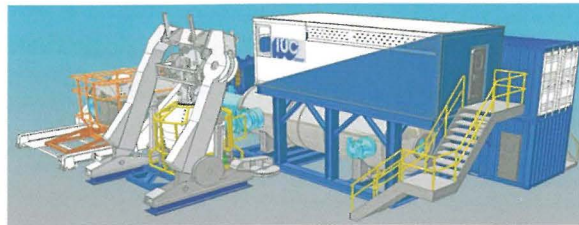
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SAT-6

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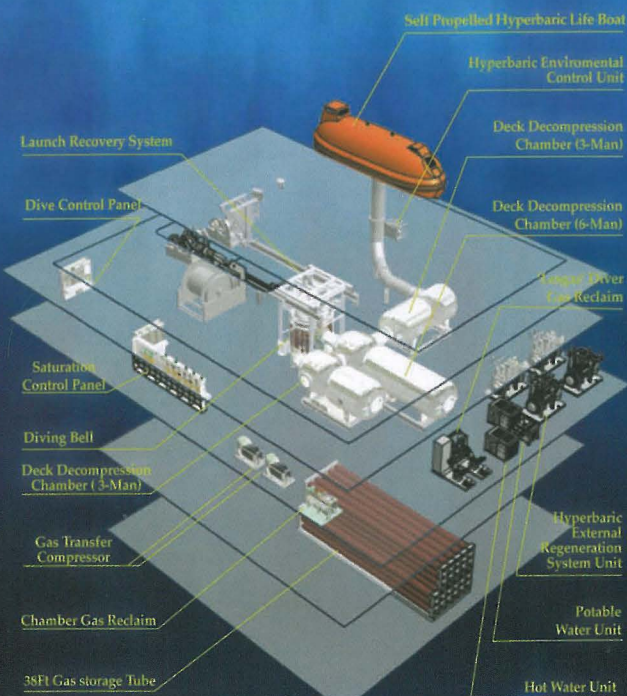


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Stan and Ernie Brooks review one of Stan's early films at Brooks Institute of Photography campus in Santa Barbara. Photo by Sid Macken.

WATERMAN FILM LIBRARY DONATED TO HDS

Stan Waterman, five time Emmy award winning pioneer underwater filmmaker and producer, has donated his library of diving films to the Historical Diving Society, USA. The collection, comprised of 22 films on both 16mm film and DVDs, dates back into the 1960s and includes works produced for the lecture circuit and television. Such notables as Sylvia Earle, Eugenie Clark, Burt Webber, Wayne Hasson, Paul Human, Bob Soto, and David Doubilet, in the early stages of their careers, make appearances in these historic films. The films also offer glimpses of diving "as it was" in such places as the Cayman Islands, the Caribbean, and the Red Sea.

HDS Director Sid Macken met with Stan in Santa Barbara in November 2011 to review some of the films and make arrangements for their transfer to the HDS for archiving. A work room and viewing equipment was provided by Brooks Institute of Photography at their Castillo Street campus. While at Brooks, Stan was able to meet with Brooks instructor and diver Ralph Clevenger, long time friend Ernie Brooks and underwater filmmaker Mike DeGruy. Stan was also able to attend the dedication of the *Purissima* display at the Santa Barbara Maritime Museum and mingle with many of his friends there.

It is the goal of this HDS project to preserve these historic diving films, and to keep them films alive and in the public eye by making them available as DVD sets in the near future. The acquisition of the Stan

Waterman Library is a vital step in that process. HDS thanks to Stan for his generous donation and for his life's dedication to educating the public to the adventure of diving and exploration of the sea.

HDS CONFERENCE 20TH ANNIVERSARY

The HDS 20th Anniversary Conference will be held at The Garvin Theatre on the campus of Santa Barbara City College, Santa Barbara, California on Saturday November 10. A welcoming reception celebrating the 50th Anniversary of the first open-water commercial helium test dive will be held at The Santa Barbara Maritime Museum on Friday November 9. An exhibition of traditional helmet diving will be held at Santa Barbara Harbor on Sunday November 11. Fuller details on the Conference weekend will be available during the year at www.hds.org. The Society's inaugural meeting was held on October 18, 2002 at the Santa Barbara Marine Technology Department, at Santa Barbara City College.

ZALE PARRY AT CALIFORNIA WRECK DIVERS

Society Advisory Board member Zale Parry, perhaps best known for her early underwater stunt work with Lloyd Bridges in the television series *Sea Hunt*, will be the guest speaker at the California Wreck Divers Annual Banquet to be held at 5.30 pm Saturday March 3, 2012, at the Hacienda Hotel in El Segundo California. The event will include dinner and the Wreck

Diver's famous Giant Raffle. For tickets and information contact Steve Lawson at (949) 433-8031 or visit cawreckdivers.org.

U.S. NAVY DIVERS REUNION 2012

The U.S. Navy Diver's 10th Bi-Annual Reunion will be held at Baymont Inn & Suites in Bremerton, Washington from May 6-10, 2012. In attendance will be members of the Navy Divers Association, Harbor clearance Unit One (HCU-1) Vietnam Association, and the SEALAB Man in the Sea Program. Various reunion events were in the planning stages at press time. For more information visit www.navydivers.net.

NEW CLASSIC DIVING EVENT IN CALIFORNIA

The 1st Annual American Diving Heritage and History program, hosted by the San Diego Maritime Museum and the USS Midway Museum, was

held over the Veteran's Day weekend of November 12-13 2011. The event offered surface supplied diving in traditional deep sea diving equipment and displays of old and new diving equipment. For further information on the program contact rasmu@cox.net.

THE OLDEST AIR

Scientists at Australia's national science agency thought they had found the oldest air in the southern hemisphere when they opened up the dive tanks a Melbourne man had filled in 1968. But it turns out several other Australians also kept tanks that were filled as early as the 1950s. Now that air is being used for climate change research. Scientist David Etheridge told *The World* radio program that the tank contents are filling an invaluable gap in his studies of Antarctic ice cores, helping him see how the air enclosed in them has changed in the past 50 years. 🌐

– Sourced from *Undercurrents*

2011 HDS MARK V RAFFLE WINNER

The Society congratulates Greg Davis of Myrtle Beach, South Carolina, as the winner of the 2011 HDS Mark V raffle fundraiser.





SIR JOHN RAWLINS

Dear Editor,

I first met Sir John Rawlins in 1990 at the Brighton Dive Show. I was there to try and find a suitable underwater vehicle for a film series I was directing for Canal Plus in France. As I'd already filmed the Deep Rover and had done a bio of Phil Nuytten for the French Adventure Program Ushuaia, I was not only familiar with the submersible but considered it by far and away the best out there.

I was met by Sir John, Sylvia Earle and the subs designer Graham Hawks, and over the next few days we hashed out a plan whereby I'd have two, two-seat Deep Rovers built for the project. Needless to say that with that team behind me, particularly Sir John who exuded enthusiasm, confidence and knowledge, we convinced Canal Plus to go with the Deep Rovers.

Over the years since I have had the pleasure of spending time with Sir John and particularly in 2001 when I flew he and Leslie Leaney to the Bahamas for what would be his last dives. My next door neighbor in Nassau was Gardner Young; he'd come from Gloucester Massachusetts out of a Portuguese seafaring tradition, his father having been lost at sea while serving in the U.S. Coast Guard. He'd served three years in the Marine Corps, and graduated Summa Cum Laude from Boston University in Public Relations.

He then turned his back on the corporate world and after a few seasons of lobster diving in the frigid waters of New England, headed for Florida finding work as a life guard on the Gold Coast. In 1957 he lay his course over to the Bahamas in an ancient sailboat and within a very short time became a legend in the diving world there. He is also a sublime poet and has written many poems about the sea and those who ply her.

Gardner and Sir John bonded immediately, two no-nonsense men who have seen most of what the Oceans have to offer and have left their egos behind. So when Sir John died, Gardner sent me this poem he'd written:

A SAILOR'S EPITAPH

*You cannot control the winds of life,
but you can trim the sails,
And tack between the reefs and
shoals, and run before the gales.
And when your sailing days are
over, may you find a sheltered cove.
Where anchors never drag, and
only the soft winds blow.
So rest in peace man of the sea,*

you've no more seas to rove,

*You've put your final anchor down,
you've found your sheltered cove.*

I feel it a fitting tribute to the passing of a man of such great presence and compassion as John.

Sincerely yours,
Krov Menuhin
St. Remy de Provence
France

Dear HDS,

Sir John was a very special man and the reason why is that he made everyone he came in contact with feel special.

About 14 years ago, I was at the Dive Show in Birmingham, UK, and I was still relatively new with DUI. I was the "bosses daughter," and had never been to England, never been to this dive show, etc., etc., etc. I was definitely feeling out of place. Then Sir John walked by our booth and saw me. He stopped, his face lit up and all of a sudden I was the most important person in the world that day. And he did that to me - and to others - every time you met him.

I will always remember about 10 years ago when he came to the US. He came to my house and my Dad, Lee and he were there and we had a little St. Patrick's Day party. I had a hot tub in the back yard and we all got in it (after suitable amounts of beverages, of course). John gets up on the stairs in his little red Speedo swimsuit and, as he climbs in, he stumbles and falls into the hot tub. I told him, "Hey, John, no diving!" He was an adorable person and I will remember him forever.

Susan Long
President & CEO
Diving Unlimited International, Inc
San Diego, California



MYSTERY HELMET

Dear HDS,

I have acquired a large brass helmet that seems to have come from a Hollywood movie. A brass plaque that came with it that reads "THIS WAS

CAPTAIN NEMO'S DIVING HELMET IN THE MOVIE '20,000 LEAGUES UNDER THE SEA.'

The helmet is shown on the shoulders of my sturdy 6'-3" friend. I am hoping that HDS members may be able to provide me with any information they have on this fantastic helmet. Thanks for your help.

Best wishes,
Eric Bakker
Seal Beach, California
eric@antiquesofthesea.com



MYSTERY DIVING PUMP

Dear Leslie,

I recently bought the diving pump shown here but do not know who manufactured it. The pump is a double-action 2-cylinder.

It has a very recognizable air delivery system in the form of an arch. Fitted on the arch are three black cranes which can be opened and closed. These cranes are probably made of Bakelite and show the letters A and Z, which could mean Auf and Zu or Abir and Zurcir.

Unfortunately there were no wheels and no chest and there's no identification name on the metal. There are, however, numbers 1, 2 and 13 stamped in the metal as well as a very pointed arrow (4mm in length and 2mm broad).

I am hoping that some members have information on who built the pump so I can restore it to its former glory. My contact website is www.deheldomduiker.com

Best wishes,
Kees De Jong
Holland

SEA HUNT AND VOIT

Dear Leslie,

I just received the new issue of the Journal and what a welcome site to see Lloyd Bridges on the cover. I have always been a fan of *Sea Hunt* and to now read the history of the Voit line of dive equipment was exciting.

I have done a lot of research into the company's history and managed to obtain every one of the double hose regulators made by them. I studied the working parts and history and I found Ed LaRochelle's article to be very accurate with the information we have to date.

From reading the article I also learned a few more things about the Voit line. I was always hoping someone would write something on this equipment and now it has been done.

I want to compliment Ed on the excellent article. I saw a big interest at the DEMA show when we had that issue of the *Journal* on display there. It brought a lot of attention and I hope new members. Thanks again for the great magazine and keep up the good work.

Bob Rusnak
Long Island
New York

FRANZ CLOUTH HELMET

Dear Leslie,

I'm answering the rebuttal of Valerie Burdick, from the *Journal of Diving History*, Vol 19, Issue 3. I'm thanking Valerie for the title of "expert," something I never alluded to. And, I fail to see a letter from me, talking about the Clouth helmet, just 33 words, and two numbers. It was a photographic opinion, from a good photo of those two neck rings as they were shown. It is too bad the two experts overseas were not named, and too bad these experts did not bid on the helmet, so as to have had it in their own collection.

I never thought that I was choosing a public forum, just making a verbal statement that was put into print. Maybe Mrs. Burdick could have contacted me instead of going the public forum route.

This variation of the Clouth is not that rare. For me it is the last one, very close to the Flohr helmet, of which I have the same style bonnet, in my collection, so there is my opinion from their photographs.

Respectfully yours,
Leon Lyons
Helmets of the Deep
St. Augustine, Florida

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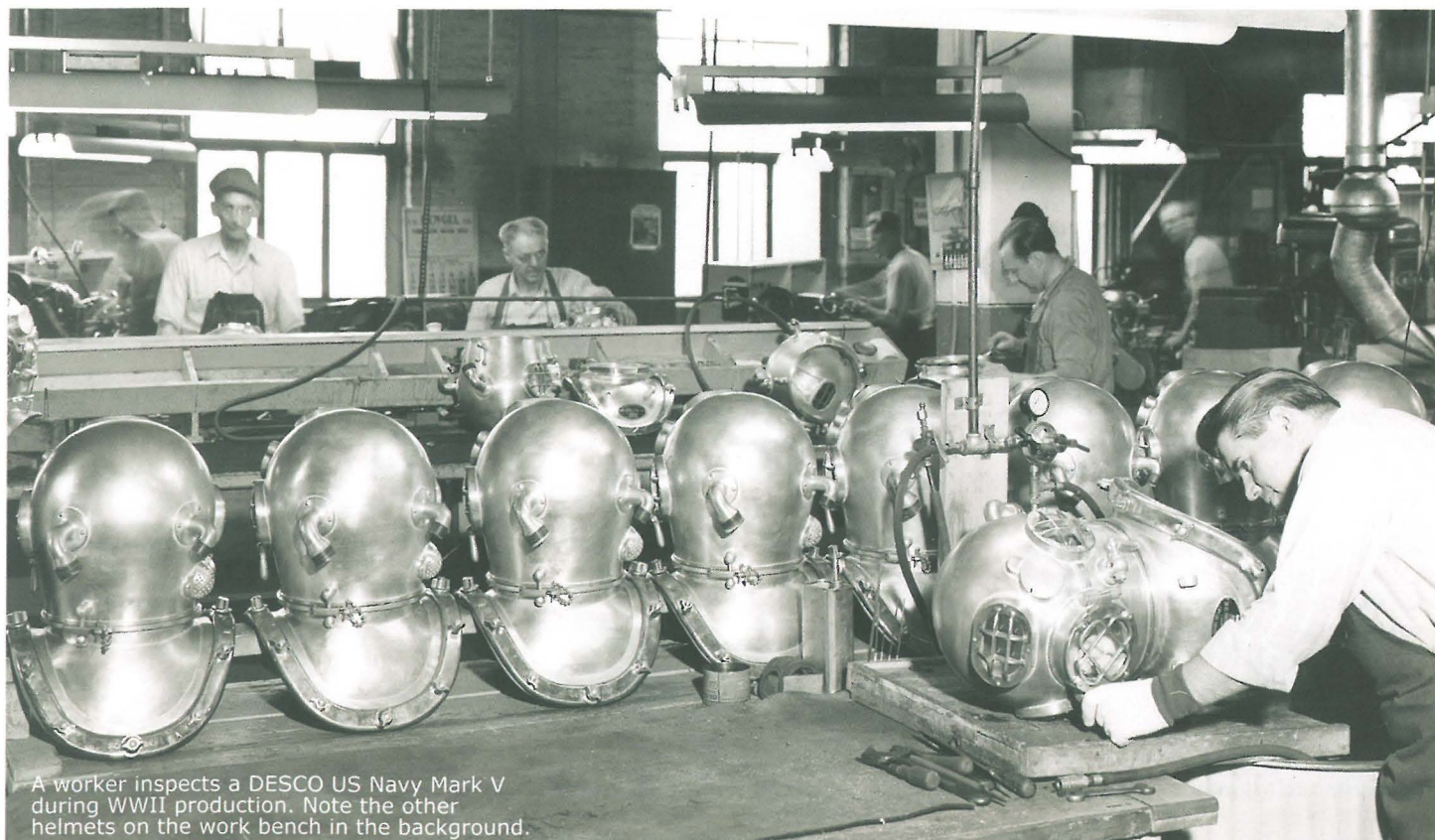


A HISTORY OF DESCO

CELEBRATING ITS 75TH ANNIVERSARY • 1937-2012

BY LESLIE LEANEY

From the middle of the 1800s into the early 1900s two East Coast companies steadily grew to dominate the manufacture of traditional deep sea diving equipment in the United States of America. Those companies were Andrew J. Morse of Boston, and A. Schrader of New York. Their domination of the market endured through to the outbreak of the Second World War, which gave a small Milwaukee-based company an opportunity to compete with them. The Diving Equipment & Salvage Company Incorporated, or DESCO as it became known, entered the market and within a three year period from 1942 to 1945 established itself as the dominant American manufacturer of diving equipment. Founded in 1937, DESCO celebrates its 75th Anniversary in 2012. The following is an incomplete, but ongoing, record of some of its history. It is based in part on the DESCO Company History, published at www.descocorp.com, from which some of the text is directly taken.



A worker inspects a DESCO US Navy Mark V during WWII production. Note the other helmets on the work bench in the background.

1934-1937: THE ORIGINS OF DESCO

DESCO started with a group of adventurous American divers, Maximilian Eugene (Max Gene) Nohl, John W. (Jack) Browne, and Colonel John D. Craig, who were striving to push the boundaries of diving technology. In 1934, as the Great Depression played out across the nation, Nohl and Browne, who had both experimented with home built helmets, were diving together on local wrecks around Milwaukee. In 1933 Nohl had graduated from the Massachusetts Institute of Technology with a Bachelor of Science in Engineering. Nohl's thesis was on diving and covered his knowledge of, and ideas for, diving equipment and innovations.

In 1935 he was putting some of this to the test by working on the salvage of the *John D. Dwight*, a steamship that had sunk off Martha's Vineyard in 1923, with several suspicious deaths and the possible involvement of organized crime. News of his salvage operations on the *John D. Dwight* garnered him some national media coverage.

This brought him to the attention of a Hollywood film producer, Colonel John D. Craig, who owned the filming rights to the torpedoed Cunard liner *Lusitania*, which lay in 312 feet of water off the Irish Coast. The vessel was internationally known and was regularly referred to as the reason the United States entered the First World War. Craig's plans also drew national media coverage. At that time, no equipment or reliable techniques were available for sustained diving operations to the *Lusitania's* depth, and it was obvious that such a project would require both physiological experimentation and an advance in diving equipment design. Nohl had already been working on diving equipment that would be functional at the depth of the *Lusitania*.

Nohl contacted Craig, who was conveniently in Boston at that time, and invited him to come down to the *Dwight* dive site and check out Nohl's equipment. Craig accepted the invitation and the

two divers soon began jointly working on plans for the *Lusitania* dive, which would require additional support equipment to be designed and built. Nohl, using a suit design from his thesis as a starting point, began experimentation on building the necessary gear. It was during the preparations for the *Lusitania* dives that Jack Browne re-enters the story and starts to work with Nohl and Craig to get the equipment ready. He also works with Nohl on the design of a new type of lightweight, self-contained diving suit.

In April 1937 Nohl contacted Dr. Edgar End, who was Assistant Clinical Professor of Environmental Medicine at Marquette University. Nohl was interested in the helium/oxygen decompression tables Dr. End had been developing. To test decompression theories, Dr. End suggested using the recompression chamber in the basement of the Milwaukee County Hospital. Nohl and Browne worked with Dr. End to explore the promising possibility of preventing nitrogen narcosis and avoiding the bends by having the diver breathe a mixture of helium and oxygen rather than air.

1937: DESCO IS FORMED; FIRST MEDIA EXPOSURE

The first major result of these collaborative efforts between Nohl, Browne, Craig and Dr. End, was the formation of the Milwaukee-based Diving Equipment & Salvage Company (DESCO) which would manufacture the newly designed diving equipment of Nohl and Browne. Craig continued to collaborate with them and participated in the research and development. The new corporation was largely financed by Norman Kuehn, a Milwaukee businessman, who became a mentor to the young Jack Browne, who at the time was only 20 years old. DESCO was set up in the rear of Kuehn Rubber Company on North 4th Street in Milwaukee. Browne and Nohl became its first full-

time employees and Browne was also one of its shareholders. He was also appointed as President but plans for incorporation were delayed for one year until Browne turned 21, and he could become a "legal" president of a corporation. Norman Kuehn was made DESCO Vice-President and local attorney Earl Wanacek became Secretary/Treasurer.

The second major result was that on December 1, 1937, in the cold waters of Lake Michigan, Nohl succeeded in diving to a depth of 420 feet, thereby breaking a depth record which had been held by U.S. Navy diver Frank Crilley since 1915. Nohl accomplished this feat using DESCO's new diving equipment and breathing a heliox mixture prescribed by Dr. End. An account of the dive can be found in *Max E. Nohl. The World Record Dive of 1937*, by John Kane, *Historical Diver* issue 7, Spring 1996. As the potential for war loomed in Europe the British Admiralty began placing more and more restrictions on John Craig's *Lusitania* expedition. Craig's book *Danger Is My Business* was published in 1938, covering his various diving adventures, including Nohl's 1937 dive. At the end of the book Craig speculates about the operations and upcoming dives on the *Lusitania*, noting he will be using the Tritonia one atmosphere dress, not the dress Nohl used. However, the gathering storms of war in Europe played Craig a black hand and the expedition was finally called off in 1938. The *Lusitania* would eventually become a magnet for the free-swimming technical divers towards the end of the 20th century. With the *Lusitania* project cancelled, and DESCO now facing survival in a competitive business market, Nohl left the company and struck out on his own. He would return to DESCO after World War II.

The collaboration between Nohl and Dr. End extended beyond the *Lusitania* program and during the course of 1937 they designed and built a scuba

A HISTORY OF DESCO

diving system, which was most probably an O2 rebreather. The DESCO company history notes that this was five years before Cousteau and Gagnan developed the Aqua Lung, which actually appeared in 1943, six years later. After thorough testing in the hospital chamber and in Lake Michigan the scuba rig and Dr. End accompanied John Craig to the West Indies to search for Spanish treasure ships in 1938-39. End served as the expedition doctor. This seems to be the last connection Craig had with DESCO.

1938-1941: PREWAR INNOVATION

With Nohl no longer at DESCO, Jack Browne kept the company going by designing and selling lightweight self contained suits. In 1938 Browne created a twin cylinder self contained breathing apparatus that could be used for high altitude aviation or diving. The cylinders were inverted, in exactly the same orientation Jacques-Yves Cousteau and Emil Gagnan would use on the first production Aqua Lungs eight year later. Browne's scuba system was connected to a helmet which housed the regulator. It is shown in *The E.R. Cross Files*, *Historical Diver Magazine* issue 22. This system was almost certainly the basis for the Browne Self-Contained Suit Model 100 and Browne Self-Contained Suit Model 106 that were part of the company's post WWII catalog. It is probable that this Browne scuba system was the unit that was DESCO's entry point to the U.S. military market when America entered WWII.

At this time in history the lines of development of demand scuba by divers with, or associated with, DESCO became a little blurred. Late HDS member James Lockwood supplied information on rebreathers he built in collaboration with Nohl. One of these was featured in a December 1938 article in a Rockford, Illinois, newspaper and reprinted in *Historical Diver Magazine* issue 14. There are two photos, one showing Lockwood diving the unit in a pool.

From 1938 to 1940 Nohl was hired by Newton Perry to work on the *Tarzan* films, starring Johnny Weissmuller, that were being shot in Florida. Accompanying Nohl to Florida were Lockwood, and Ivan Vestrem. Lockwood and Vestrem were using rebreathers and goggles, and several photos of these divers in this equipment at this period were taken. The HDS published two of these in *Historical Diver Magazine* issue 5 and issue 9, which show Americans diving with a demand scuba system three to five years before the Aqua Lung was invented. While at Silver Springs, Nohl designed and operated a diving bell that allowed visitors to the park the opportunity to see the Springs from the view of a diver.

So to recap, in 1938 Browne had a demand scuba unit featuring twin cylinders connected to a metal helmet. Also in 1938, Lockwood and Nohl had a functioning rebreather—and Nohl had rebreathers in use by himself, Lockwood and Vestrem in Silver Springs between 1938 and 1940. It would seem that Browne pursued a scuba system, similar to that of Draeger and Siebe Gorman, for the traditional diver who walked on the sea bed. From period photographs, it appears that Nohl and his team pursued a free swimming scuba system, similar to that soon to be used by Decima Mas with their Pirelli and Salvus rebreathers.

1942-1945: WARTIME EXPANSION

With the outbreak of World War Two, Kuehn



Eleven women working on the DESCO soldering line for US Navy Mark V helmets during WWII production. Note the bonnets on the shelves awaiting soldering.

urged Jack Browne to go to Washington and explain to the military just what he and DESCO were capable of. Browne headed to Washington in January of 1942 and returned with a \$5,000 order for three self-contained DESCO suits. It is assumed that these were the Browne Self-Contained Suit that the company would designate Model 100 in its catalogs. That first order led to many others, including manufacture of the U.S. Navy Mark V helmet. Production of these started in 1942, and during the course of WWII the company manufactured approximately 3,000 helmets for both air and helium diving. These helmets were sequentially numbered, with serial number 3,000 being manufactured in a batch dated September 5, 1945.

World War II shifted the focus of the company to standard diving equipment production. In addition to the U.S.N. Mark V, it offered a Standard Commercial Diver's helmet, the Browne Sponge Diver's helmet, the Browne Abalone Diver's helmet, the Agar helmet, the Browne Utility Helmet, and the Browne Shallow Water helmet. The lightweight equipment that Browne and Nohl had developed during the prewar years was also manufactured. One of Browne's most enduring contributions to the company from this period was the Jack Browne mask. The mask came in various configurations and continues in use to this date. Lockwood later recalled that during WWII six different types of rebreathers were developed by DESCO and divers associated with the company. DESCO staffed itself for mass production and photographs from this period show busy shops, staffed with both men and women. The women were real-life versions of "Rosie the Riveter," a strong, fictitious American housewife who worked in the factories for the war effort while her husband was serving in uniform. One of these women would go on to earn a unique place in American diving history.

In October 1942 DESCO placed advertisements in Milwaukee newspapers seeking applicants for job openings in their plant. A patriotic young woman named Bernice Mackenzie, seeking work in a defense industry, came in for an interview. She was told the opening was for a solderer. Although she had no experience, DESCO took a chance on her. Two women were already soldering for DESCO but were leaving the company for other jobs. They took three weeks and trained Bernice before they left. She was then the lone solderer for about a month before another girl was hired. Within six months the soldering department had eighteen women, and all were trained by Bernice. As the war progressed and more work came DESCO's way Bernice was moved to other departments and given more responsibilities. She spent time in the Experimental Room working with E.D. Buie on his recirculating helmets. As he came up with new or revised plans the helmets would get reworked. Designed for mine disposal work, very few of these helmets were manufactured. Bernice also worked on some of Jack Browne's experimental projects.

The war effort brought large Navy contracts for diving equipment to DESCO. The company's research and development roots were not overlooked by the government. DESCO was contracted by the Office of Strategic Services (forerunner of the CIA) to design and build a compact oxygen rebreather. The result was the DESCO B-Lung. This unit permitted divers to swim freely under the surface in the manner of scuba divers, but without producing bubbles, which might disclose their position. Other projects included the Browne U.S. Navy Diving Mask, the Browne Lightweight Suit (Bunny Suit), and the Buie mixed gas helmet. The government contracts included not only conventional hard-hat gear, but also weight belts, shoes, knives, tools, recompression chambers, and miscellaneous items. By V-J Day,

DESCO was producing more diving equipment than any other company in the world.

1945: WORLD RECORD DIVE

By 1945 DESCO had its own pressurized wet tank for research and development. On April 27, 1945, Jack Browne used this tank to "dive" to a depth of 550 feet of seawater. Browne used a U.S. Navy Lightweight Diving Suit (Bunny suit) for the tank dive. As in the case of Nohl's earlier dive, he breathed a heliox mixture under the supervision of Dr. End and set what was believed to be another depth record in international diving. But maybe not. At this time the war in Europe was entering its final stages and representatives of America's allies, in the form of representatives from Russian forces, were invited to witness the dive. At this period in diving history the Russians had already been deeper than Browne. According to research by Dr Alexander Sledkov, Russian divers had been to 200 meters on a heliox chamber dive in Leningrad in 1940, but it is not known if this information had been shared with their American hosts. There appears to be no records of those particular Russian deep dives published in any American diving publication. They most recently came to light in Sledkov's presentation at the HDS USA Conference in 2002. Irrespective of this point, it seems certain that America supplied the Russians with USN Mark V helium helmets in WWII. As the Soviet Union broke up in the late 1990s WWII era unmodified DESCO Mark V helium helmets were brought out of Russia by maritime antique dealers. The author's recent research into 1945 Russian diving manuals turned up not only details, but also diagrams, of USN Mark V helium diving helmet equipment. I therefore believe it is possible that the USA had supplied Russia with USN Mark V helium helmets, and the associated supporting technology, before 1945. Browne's dive again thrust DESCO into the national spotlight and was the Cover Story for the October 1945 issue of *Popular Mechanics*.



A diver in a light-weight dress wearing a rebreather and a two-hose DESCO Conversion mask.



A diver wearing the Browne Utility Helmet.

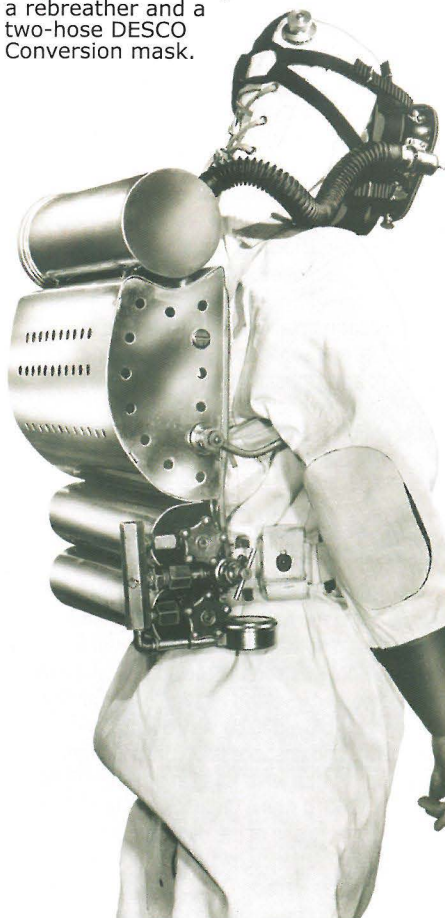
1945-POST WWII

Towards the end of 1945 the company name changed its name to Diving Equipment & Supply Co. The manufacture of equipment for World War II had elevated DESCO to the front of the American diving equipment manufacturing field. The company's price list for January 15, 1946 consisted of seven pages listing approximately 190 diving related items. A new USN Air Mark V was \$255 and the Helium version was \$465.

During the period of WWII from 1942 to late 1945 DESCO had manufactured approximately 3,000 USN Mark V helmets. The Morse, Schrader and Miller Dunn diving equipment manufacturing companies had also produced the Mark V. Once hostilities ceased and demobilization began, the U.S. military was faced with a tremendous surplus of diving equipment. A lot of this found its way into the war surplus stores and a lot of it was destroyed for scrap value. This abundance of available diving equipment meant there would be few new orders of traditional equipment for DESCO and the company looked for marketing opportunities elsewhere. The end of the war brought a slowdown in the diving market. Foreseeing this situation the company had begun moving into the recreational market.

As they had been innovators of self contained equipment before the war, they turned their sights on the recreational water sports market. The nation was keen to enjoy outdoor leisure pursuits after the stresses of war and DESCO products included search boards, water skis, masks, and fins. To support this new direction a sporting goods division was formed with J. F. Fulop as sales manager.

In June 1946 DESCO published the first issue of *Diver's News*, "A new Quarterly Publication published exclusively for the interest of divers the world over." The cover of the four page booklet featured a drawing of a diver in a Mark V helmet positioned between two globes of the earth. One globe showed the company's logo and address, the other stated "Under The 7 Seas." The editorial column solicited contributions from divers and a personal note from Jack Browne urged the same, noting



that "I know most of you divers personally. Know you don't care for fanfare and publicity, but do know that you all have a good time and are regular fellows, so don't be bashful and you will help build up the circulation and add to the value and entertainment of Diver's News." As way of example, photos of various diving operations were shown. One was from Lou Small in San Diego showing agar and abalone diving below the Mexican border and another was from Nick Tsagaris, DESCO representative and "Sponge King" of Tarpon Springs. The DESCO Gossip column noted visits to DESCO from Walter McCray, Clark W. Runner, Bob Forrest, Carl Peterson, G.W. Falcon, Jack Hose and a few other divers. Volume 1 Number 2 was published in October 1946, but the date of publication of the last issue is not known to the author.

In 1946 Jack Browne and Norman Kuehn sold the company to Alfred Dorst, Paul Hoffman, Irwin Knoebel and E.M. Johnson, who had been general manager of DESCO during the war. Browne moved on to other business opportunities with his family. Ever the colorful character, Browne led an adventurous life and passed away in the Caribbean in 1998. Around the time Browne left, Nohl returned to DESCO as a technical advisor. In 1948 the first Aqua Lungs started to appear in America, and the initial steps towards a broad recreational diving market, with stores, training facilities and recreational diving publications, were taken.

1950-1966: KOREAN WAR AND RECREATIONAL MARKET EXPANSION

In 1950 Cornell Maritime Press published a book by two American divers, Hilbert J. Schenck and Henry W. Kendall. Aimed partially at the growing diving market which had equipped itself with WWII war surplus equipment, it was titled *Shallow Water Diving for Pleasure and Profit*, and DESCO products were highlighted in several parts of the text. There followed a very rapid expansion of American recreational diving and by 1954 the book had been expanded and published as *Shallow Water Diving and Spearfishing*. With almost double the number of pages of the first book, DESCO products were shown in abundance.

In 1950 Bernice McKenzie had been with DESCO for eight years and was working with Nohl in the Experimental Room. By this time she had worked in, and supervised, every department in the company. Unbeknownst to her she was being groomed for promotion and was appointed vice-president of DESCO during that year. The Korean War broke out the same year which again brought an increase in U.S. Navy contracts and orders and by January 1955 they had produced approximately a further 1,150 Mark V helmets since the end of WWII.

In 1954 Nohl left DESCO to form his own diving supply company American Diving Equipment of Milwaukee. The venture was successful but short lived as Nohl was soon attracted to a wreck near Milwaukee and invested heavily in it's salvage. The venture proved to be very difficult and very expensive, and unsuccessful. Unfortunately Nohl and his wife were killed in an automobile crash in 1960. It was a great loss as Nohl was unquestionably one of the most innovative and daring divers America had ever produced.

During this decade DESCO expanded its recreational scuba diving line. An early 1950s

company catalog offered three versions of the Dolphin scuba which featured the sturdy Jack Browne face mask, plus the Adventurer oxygen rebreather, two other Browne masks, spear guns, compass, fins, snorkel, weight belt and a cold water gum rubber suit. Later in the decade they published a catalog that featured their "Complete Line of Water Sports Equipment." Divided into two sections the catalog featured three pages of Sport Diving equipment and four pages of Water Sports Equipment. Included in the Diving section was the DESCO Airmaster two hose regulator which was listed as available with a 70 cu. ft cylinder for \$129.95. The listing stated that the regulator was the "Holder of the World's Compressed Air Depth Record," a reference to Fred M. Roberts dive in the DESCO chamber dive to 380 feet.

However, the recreational diving and watersports markets turned out not to be for

DESCO, and by 1960 the company had left that market was concentrating on the commercial and military diving fields. The company's price list for February 1, 1960, listed only the Dolphin mask from its Sports Diving category. The escalation of America's involvement in the Vietnam War, and military contracts with guaranteed payment, may possibly have played a role in the company dropping its recreational line to concentrate on military and commercial equipment. The ownership also changed hands several times during this period.

1963-1966: DESCO HELMETS CONVERTED FOR OILFIELD HELIUM DIVING

In 1962 Diver Hugh "Dan" Wilson made the first commercial helium test dive off Santa Barbara, California. Wilson had modified a standard

Jon Lindberg with the PURA system connected to an Air Hat



The DESCO helium recirculator based upon the Lindberg Hammar design.



DESCO HDS USN Mark V 70th Anniversary of the Salvage of the USS Squalus Helmet.
© Steven M. Barsky. All rights reserved.



Japanese abalone diving helmet by installing a scuba demand regulator with which to breathe helium on demand. Following the success of that dive, at least two DESCO abalone helmets were modified by installing scuba demand regulators. These conversions were probably done sometime during 1963 by Bob Ratcliffe working for Wilson's newly formed company General Offshore Divers. One company competing against Wilson was Associated Divers who were trying to break into helium diving. In 1965 Associated Divers acquired at least six, and possibly more, DESCO sponge model helmets. Six of these helmets were modified by Associated for helium diving using a recirculation system, not demand. Ex USN and abalone diver Bob Kirby was a central part of the Associated team that converted these helmets. Shortly thereafter Kirby went into business manufacturing helium helmets that bore his "R. Kirby, Commercial Helmet, Santa Barbara, California," manufacturer's

plaque. During this same period at least two other DESCO helmets, this time Browne Commercial models, were converted to helium recirculation by Kirby.

One of the Santa Barbara based divers involved in the rapidly developing field of helium diving was Jon Lindbergh, who teamed with Pat Hammar to produce the Lindbergh Hammar helium recirculator helmet, which were built on Japanese helmet shells. The metalwork and modifications on these helmets were quite crude when compared to the sophistication of the R. Kirby models. Sometime between 1966 and 1969 Lindbergh became connected to DESCO and the company produced an almost exact copy of the Lindbergh Hammar recirculator helmet, but built to a much higher standard on a DESCO Sponge shell, similar to what Kirby had done with Associated. There were a few modifications to the original Lindbergh Hammar design, and the author does not know if any more

than the one model shown here was built. In 1969 DESCO partnered with Lindbergh - Hammar Associates to produce and market a lightweight helium helmet using the DESCO Air Hat and LHA PURA CO2 Scrubber system. The PURA system was an electrically powered, turbine pressurized unit which circulated mixed gas through the helmet and back to a CO2 absorption canister.

1966-1979: DESCO PURCHASED BY THOMAS FIFIELD; THE DESCO DIVING (OR AIR) HAT IS CREATED

In May 1966, DESCO was purchased by Thomas and Marilyn Fifield. In addition to owning DESCO Mr. Fifield had a steady law practice, owned John L. Chaney Instrument Co., served on several boards, edited a newsletter for the Friends of the Milwaukee Public Museum, was a member of the Milwaukee Zoological Society, was a private pilot, and served as president of the Aerostar

DESCO HDS USN Mark V 80th Anniversary Helmet. © Steven M. Barsky. All rights reserved.



Owners Association.

Mrs. Fifield also served on several boards in Milwaukee.

With the new ownership the numbering system for Mark Vs changed, and the new production started with helmet # 100. Research shows helmets #102 and #108 were manufactured in September 1966. This numbering system seems to run to around 1969 when it changes again. In March of 1970 helium Mark Vs numbered 53, 56, 59 have been recorded. Company records of production and serial numbers are incomplete but files are constantly being updated as more information is supplied by owners of DESCO Mark V helmets. The company's January 1, 1967 price list had the Mark

V helmet listed at \$600. Throughout the 1960s the American military had been involved in the Vietnam war and it is probable that DESCO was again fulfilling military orders.

At the urging of New Orleans diving shop owner Ronnie Temento, Mr. Fifield went to New Orleans to observe commercial divers using modified motor cycle helmets for shallow water diving. Mr. Fifield came back to Milwaukee and designed and tested the DESCO Diving Hat, working closely with the staff on the design and fabricating parts for the prototypes. He built an indoor pool in his house where testing was conducted. Known in the industry as the DESCO Air Hat or DESCO Pot, the free-flow helmet became popular with divers working in

contaminated water and nuclear environments and remains a production item today.

In 1968 DESCO moved to its present address at 240 North Milwaukee Street in Milwaukee. During the first half of the 1970s DESCO produced numerous USN Mark Vs for the military in both air and helium models. There is some indication that they also produced MK Vs for the Morse Company of Boston, possibly as a sub-contractor to enable Morse to fill a military order.

The DESCO numbering system for Mark V helmets changed again, this time from the three digits introduced in 1966 to two digits. In March 1970 three helium models manufactured were serial numbered 53, 56 and 59. This sequence of serial numbers seems to run through to at least serial number 217 in January 1989. However, records are incomplete and it is possible that another serial number sequence was assigned inside this period. A 33 page catalog with the DESCO Diving Hat and a USN Mark V on the cover was published around the mid-1970s.

1980-1990: DESCO NUCLEAR HELMET INTRODUCED

In the early 1980s the U.S. Navy ceased training with the Mark V and moved on to the Mark XII, another free-flow helmet—but constructed of fiberglass by Morse Diving Equipment Co. of Boston. The advent of the lightweight swimming gear helmets in the mid-1960s was the first step in seeing the majority of traditional copper and brass helmets retired from active working service. However, to this day, some commercial diving operations prefer the traditional style helmets and DESCO continues to manufacture these for the industry. One of these companies is Peterson's Diving of Chicago. In the early 1980s DESCO collaborated with John Peterson on a design for the DESCO Nuclear Helmet. Three Illinois diving firms, Peterson's, Chicago, and Scott, were owned by extended family members. Peterson's was doing nuclear power plant maintenance and wanted a helmet with additional safety against leak-back. Since preventing water infiltration is critical in nuclear diving, every method available to prevent it was incorporated into the design of the DESCO Nuclear helmet. DESCO also continued manufacturing the DESCO Air Hat and their Abalone, Sponge, Agar, and 3 or 4 light commercial helmets, plus custom orders for the USN Mark V.

In December 1989 Bernice Mackenzie retired after suffering a heart attack and a stroke. For nearly forty years she had successfully managed DESCO in a male dominated industry. After she retired she remained connected to some DESCO clients by telephone and mail. I interviewed her in 1993 and she provided some detailed insight of DESCO from her years there. The interview was published in issue 1 of *Historical Diver Magazine*, Summer 1993. Bernice was the only person to be granted an Honorary Membership in the HDS USA. She passed away on March 28, 2000, at the age of 88 after a remarkable and unique career in the diving industry.

1991 TO PRESENT: RICHARD KOELLNER BUYS DESCO; HDS IS FORMED

The company ownership changed again in 1997 with the purchase of DESCO from Mr. Fifield by Richard Koellner. Recalling his start with DESCO, Koellner recently noted, "I joined the company

in January 1980. The temperature in Milwaukee was -8 degrees F and I was working construction. At that time my brother worked at DESCO and asked me if I'd like a week or so in from the cold installing the "Guided" plugs on twenty 200 meter Navy communications cables going to Japan. And to sweep the floors. The week's worth of work has lasted me 32 years. And sometimes I still sweep the floors." Koellner still owns DESCO. Mr. Fifield passed away on February 9, 2007 at age 91.

As the new fiberglass helmets gradually took over the commercial diving industry, the retired traditional helmets became collector's items. Through the 1970s and 1980s DESCO started to do an increasing amount of restoration work as collectors found old helmets. In October 1992 the HDS USA was formed, and several of its founding members were collectors of vintage diving equipment, including helmets. The publishing of the HDS's *Historical Diver Magazine* in 1993 provided Society members with a printed outlet for information on various types of historical equipment. DESCO became an early sponsor of the magazine and as the relationship between the company and the HDS began to evolve, DESCO was commissioned to produce limited runs of commemorative helmets for the Society. These exclusive HDS helmets were individually numbered and featured custom HDS plaques.

The first of these helmets was a USN Mark V produced in 1995 to commemorate the 80th Anniversary of the introduction of the USN Mark V. Twenty were built. The second helmet was an Abalone helmet produced in 1997 to commemorate the 60th Anniversary of the founding of DESCO. Twenty were built. The third helmet was a USN Mark V Helium helmet produced in 2009 to commemorate the 70th Anniversary of the USN's successful salvage of the *USS Squalus*. Twenty six of these were built. HDS members had priority access to each series of these helmets and all are now in international collections or museums.

In 1999 DESCO designed the Browne Commercial Diving Helmet. It is similar in design to Bob Kirby's original air helmets, which are favored by many commercial divers and were replicated by the Japanese companies Yokohama and TOA. As these Japanese manufacturers withdrew from the American market, a niche for these helmets was created. Kirby had heard about commercial divers still wanting this type of helmet. His earlier conversions of DESCO Sponge helmets for Associated Divers had proven successful and he called Koellner suggesting DESCO manufacture a similar helmet. DESCO did this and thus refers to the Browne Commercial Helmet as "Bob Kirby inspired."

In addition to the Kirby-inspired commercial helmet, DESCO added the Fisheries Helmet and the new Stillson concept helmet to their product line—which still included the Browne Utility helmet and DESCO Shallow Water helmet which had been introduced in the 1940s. The roots of the new Stillson concept helmet are in the 1915 U.S. Navy Report by Gunner's Mate G.D. Stillson. Contained in the report were drawings of a preliminary design for a new standard helmet. Those drawings were the precursor to the USN Mark V Helmet. DESCO took those concept drawings and manufactured a real functioning helmet.

The company continues to improve its famous DESCO Jack Browne full-face mask. This mask

DESCO HDS DESCO 60th Anniversary Abalone helmet.
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was a standard piece of equipment in the U.S. Navy for 40 years and was purchased in large numbers. It is still in commercial use in light duty, boat hull maintenance and swimming pool maintenance applications. By sheer number it is perhaps the most prevalent commercial mask made.

Today DESCO continues to serve the modern diving industry and remains a valued sponsor of the *Journal of Diving History*. For fuller details on the company and its current diving products visit www.divedesco.com.

AUTHOR'S NOTE


Due to space constraints, articles detailing the careers of the Founders of DESCO will appear in future issues of the *Journal*. The information in this article came from many different sources. I would like to acknowledge the assistance of Ric Koellner, Bill Pecky, the late Bernice Mackenzie, the late Thomas Fifield, Bob Kirby, John Kane, Lee Selisky, Bob Ratcliffe, Gene Webb, Leon Lyons, the late Peter Fields of HDS SEAP, Pete Berdzar, Alexander Sledkov of HDS Russia, Ken Brown and

Eric Bakker. The primary research resources were DESCO catalogs and price sheets, research notes from the author's archives, the DESCO web site at www.descocorp.com, and issues of *Historical Diver Magazine* and *The Journal of Diving History*.

THE AUTHOR

Leslie Leaney is the Co-Founder of the HDSUSA, Founder and Publisher of *The Journal of Diving History*, and the Director of The International Scuba Diving Hall of Fame Museum. He lives in California.






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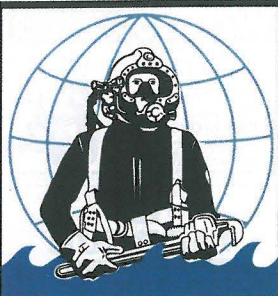
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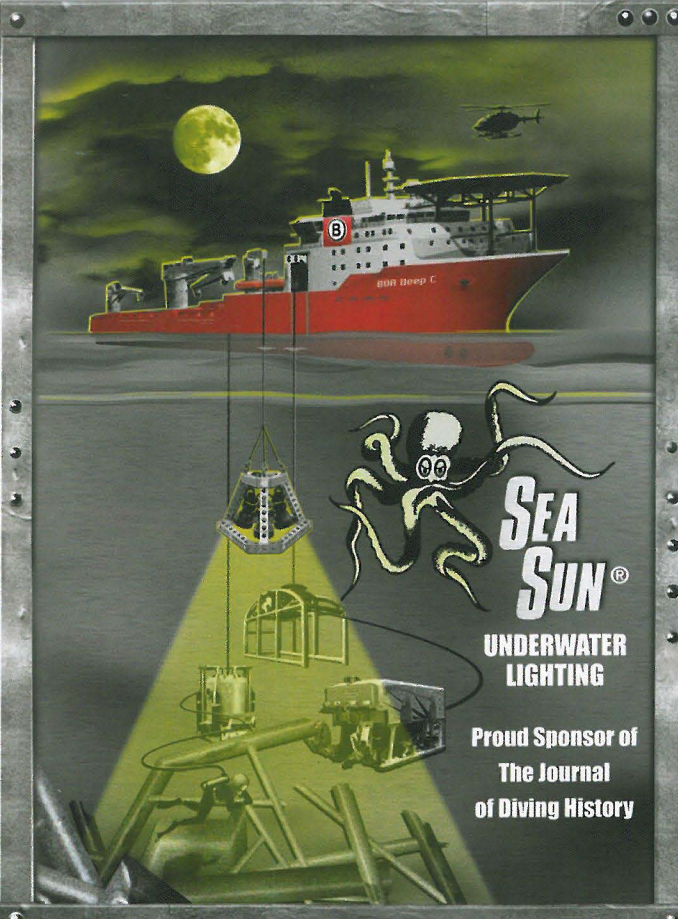
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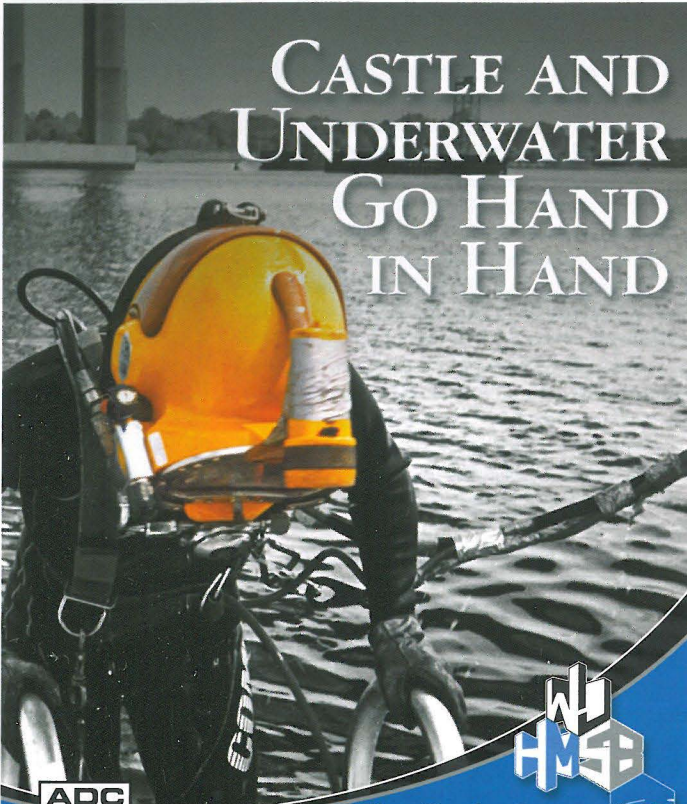


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FROM BEHIND THE CURTAIN DIVING EQUIPMENT FROM THE EASTERN BLOC

Luftwaffe Below in the Wild, Wild East

By Peter Katz

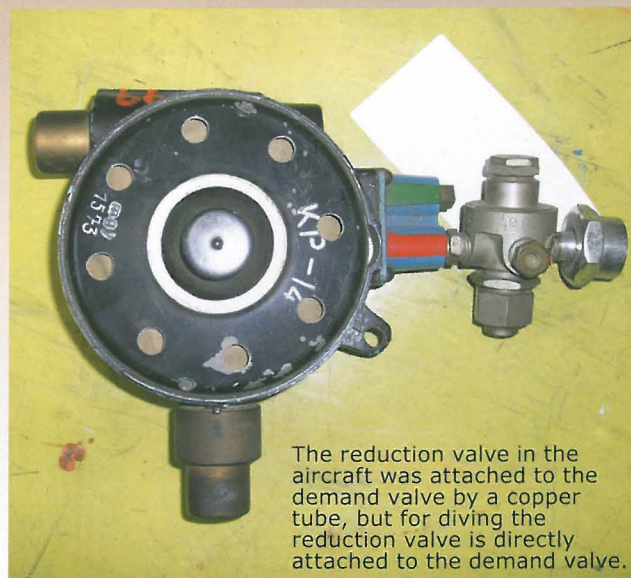
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At the beginning of sport diving in Czechoslovakia in the late 1950s, there were no scuba units on the market. However, like their American counterparts, potential divers quickly discovered aircraft oxygen diluter regulators that had been used in the Second World War by Germany's Luftwaffe.

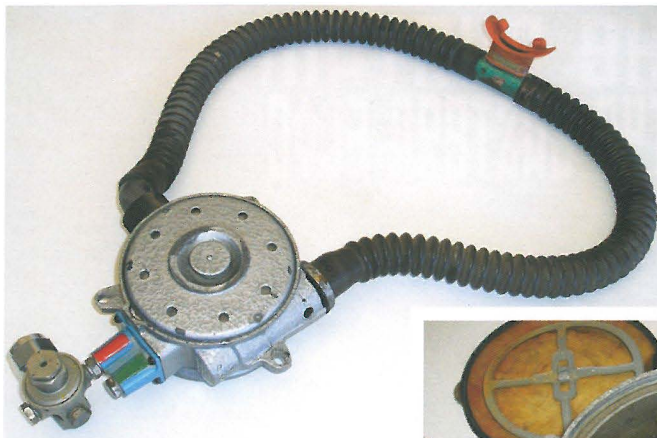
I was fortunate enough to be one of the first to discover these regulators. I stripped around 17 regulators, as best as I can remember, out of downed Luftwaffe planes I found in aircraft graveyards or in scrap metal centers. After the war, copies of these oxygen diluters were also produced in Russia and Czechoslovakia for their fighter jets. These O₂ regulators were designated as KP 14.



An original aircraft KP 14.

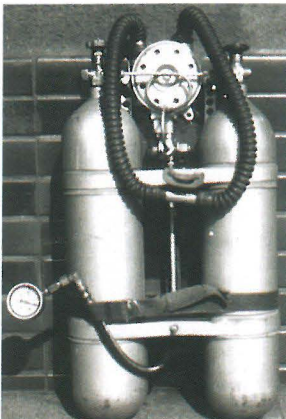


The reduction valve in the aircraft was attached to the demand valve by a copper tube, but for diving the reduction valve is directly attached to the demand valve.



(Left) Typical layout of KP 14 modified for diving where the second corrugated hose with an exhaust valve was added to KP 14. In the aircraft configuration, only one hose leads to the pilot oxygen mask.

(Below) KP 14 body showing two levers and two diaphragms.



Author's My KP 14 unit back in the 1950s.



A colorful KP 14 twin-cylinder rig.



A sturdy-looking KP 14 twin-cylinder rig.



PA modified KP 14 regulator that was used as hookah or narguile regulator

Eventually there were no more regulators in the aircraft graveyards, but people interested in scuba diving continued to search for them. As it happened for my friends, luck was on the diver's side. We had a colleague who was working in an aircraft company that produced these KP 14 regulators. He was not a diver but he did have an entrepreneurial spirit. Realizing there was an untapped market for the regulators, he started to secretly remove them from the factory shelves and smuggle them out through the factory gate. Thus a new scuba equipment resource was born. He would meet budding divers on the bank of a flooded quarry and sell them the regulators very cheaply. He even included the regulator instruction book in the price!

The KP 14 demand valve had not one, but two, diaphragms and a separate reduction valve (reducing 150 bars of oxygen to 9 bars) which was between the demand valve and the oxygen cylinder. When our budding divers modified the KP 14 for diving they produced hundreds of different designs. These were created by the individual vision of the diver and his ability as a craftsman.

At this time in history Czechoslovakia was a highly industrial country, similar to Germany. It manufactured cars, aircraft, tanks, military arms and optical and chemical devices. HDS USA members may be familiar with Semtex, or Bren and Uzi machine guns, all of which originated in Czechoslovakia. In many cases, this industrial capability provided the technology and components for some divers to make modifications to the KP 14 that were very sophisticated, even though these were most often done in private backyard workshops.

In the prevailing communist society of that era, all factories with machine shops belonged to the state. In Czechoslovakia, as in other countries, everything which was under government control was highly inefficient. This proved to be a blessing for the budding scuba diving movement as people working at government factories freely used machine shops for their private activity. Although it was a communist system, free-enterprise divers had no problem in producing their own regulators, pneumatic spearguns, HP compressors, camera housings, and other equipment needed for diving.

For example, in one company which made huge diesel engines for ships there were two potential divers working in a foundry. During the night shift they melted aluminum pistons, and by using this alloy in precision casting they manufactured very nice regulator housings. At another company,



(Above) Another unique diving unit used three sphere oxygen cylinders which provided a total of 2 liters capacity.

(Below) These cylinders were also originally used by the German Luftwaffe. In the 1950s not everybody in Czechoslovakia was able to get the standard shaped cylinder, so one friend used five of those three sphere cylinders connected with a KP 14. The 15 spheres gave a total capacity of 10 liters.



divers made a die for diaphragms and mouthpieces and pressed them in different colors. Company management never knew that on their premises, and on their payroll, was a private diving equipment manufacturing business. These things happened a few years after the KP 14 became popular but they are indicative of some of the things we had to do in a communist country to get diving.

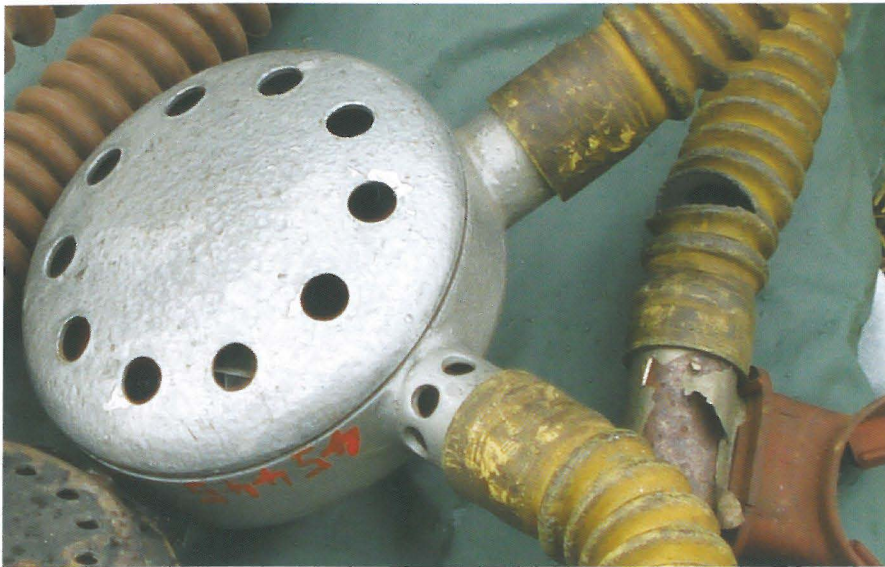
Among the individual KP 14 regulator designs was one made by Josef Vorisek of Prague that really stood out from the rest. In his design and construction Josef was able to insert not only the first stage inside the demand valve but also a watertight pressure gauge and the manifold connection for two cylinders. He also added a connection for a third smaller cylinder.

I believe that Josef probably made three of these units in the late 1950s or early 1960s, and I am aware of two of them that still exist today. In his later years Josef was also the designer of the Czech Saturn regulator.

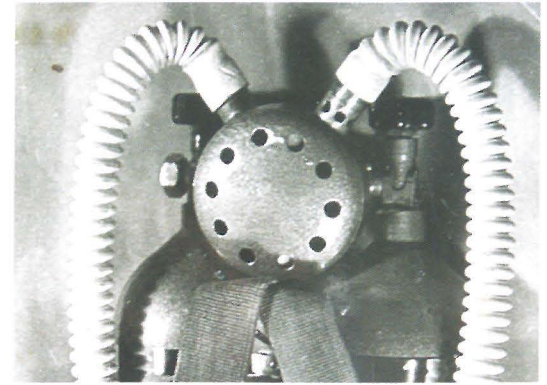
Just as divers in America needed an air supply for their diluters, Czech divers needed to find cylinders to which to attach these KP 14s. At this time divers used any type of cylinder they could get. Nobody cared how old the cylinder was or what gas it was designed to contain. So, when you turned up for a dive with your buddies, you could look around at the equipment and see cylinders designed to



Below and above right) KP 14 in Josef Vorisek's creation.



(Above and right) The housing of this regulator was in previous life a piston of a ship engine.



for oxygen, CO₂, nitrous oxide or hydrogen—all filled with “breathable” air. In a true salute to the innovation of ex-WWII military equipment one diver used a cylinder from a flame thrower! These days we have hydro testing and all the latest safety tests. The modern dive store would probably have a heart attack if they were to see the oldest cylinder which we used for diving and which served us very well. It was designed for CO₂ and dated from 1899.

During these early days of Czech scuba diving there were no books, magazines or any information about diving available to us in the national market. Nothing. Zero.

Further, we were not permitted to buy it from the West. All our knowledge came only from watching the films of Hans Hass and Jacques-Yves Cousteau. But these were not on television. They were at the cinema, and we watched them over and over as movie tickets were very cheap. From watching these movies we knew exactly how to submerge and interact with fish in tropical waters, but which we would probably never see!

Everybody learned about diving in their own way, and hoped to survive our sometimes dangerous home-made equipment to dive another day. And most of us did.

For us Czech divers, those were days of the Wild Wild East! 🐻



The camera housing – an amateur product. (Courtesy of Vaclav Kriz)



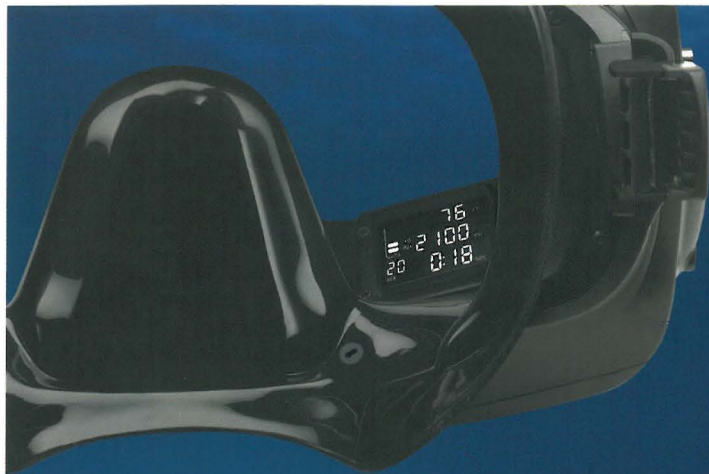
This undated photo shows a diver wearing the 15-sphere rig, next to a diver wearing a Czech-manufactured Rekord rig. Rekord was first manufactured in 1959, making this photo no earlier than that. (courtesy of Jiri Pogoda)



THE AUTHOR

Peter Katz was born in Prauge, Czechoslovakia, in 1938, and used a gas mask for his first dive in 1956. In 1969 he was hired as a Chief Designer for a new diving company, Sportklimek, and later by Aquacentrum in Prague, designing regulators, helmets, valves, deep sea cameras and test equipment. In 1978 he received a United Nations Fellowship to study underwater technology in UK. Peter later became a State Inspector for pressure vessels and gas devices and received a few patents for diving equipment. In 1979 he escaped from Czechoslovakia with his whole family and immigrated to Australia. Peter worked for Sydney-based T.D. Preece Co. (Sea Hornet) as a Chief Engineer, designing regulators, cylinder valves and spear guns. He retired in 2003 and devoted his skills and knowledge to the preservation of diving history through the HDS.





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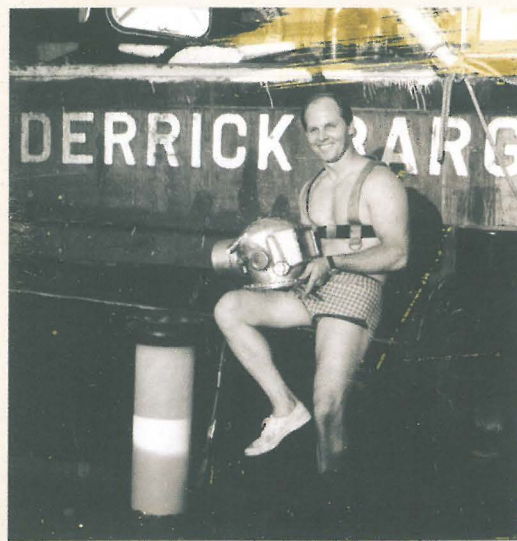


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Unknown Helium Recirculator

Circa 1970

By Leslie Leaney

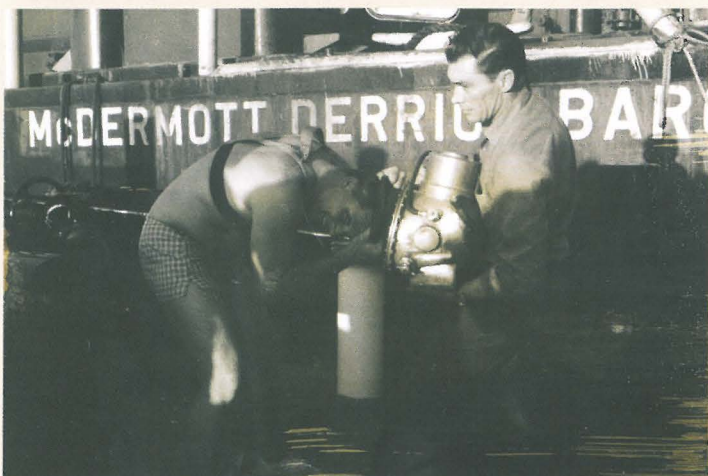
The four photos here are from professional diver Jerry Neff, who worked for J. Ray McDermott during the 1970s. Jerry's name may be familiar to professional divers through his connection to Mike Duecy. Together they developed the lightweight Neff-Duecy helmet of the mid-late 1960s.

These photos show Jerry using what appears to be a custom-built recirculator similar to the Bob Kirby design, but with a neck dam seal instead of an interrupted thread attachment to a standard 12 bolt breastplate.

This configuration would enable the diver to use it as swim gear equipment, with fins, instead of the traditional heavy gear boots.

The images were taken in the Red Sea on a McDermott contract in the 1970s.

HDS is seeking any additional information on this helmet. Please send any information to hds@hds.org or by mail to HDS, PO Box 2837, Santa Maria, CA 93457. 📧



Mark V Monument Update

By Dave Sullivan

The Mark V Monument Project is rapidly approaching completion. The foundation for the monument has been poured and the floodlights have been installed. The concrete has been stained and will receive the final sealer finish on schedule.

The five bronze military seals and dedication plaque have been purchased and delivered to the granite artisan. The granite was scheduled to be measured, cut and installed with the bronze seals in January 2012. This will complete the pentagon base, which will then await the delivery of "Jake."

We expect Jake to be delivered, mounted and unveiled by the middle of November 2012. The Mark V Monument Project will host a party on the quarter-deck of the Naval Diving and Salvage Training Center immediately following the unveiling and dedication. All are invited to attend.

Of the 300 commemorative statuettes, only 36 remain available. When they are gone, and they will soon be, they will be gone! For more, visit them online at www.markvmonument.org.



KM 37

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HDS Chairman Dan Orr presents Flashback Scuba's Ryan Spence with the HDS Nick Icorn Diving Heritage Award.

Historic Mariner's Museum Hosts HDS Conference 2011



(Above) Cambrian Foundations Amy Giannotti and Terrance Tysall.

(Below) Captain Bobbie Scholley, USN (Rtd.) and Steve Belinda.



The Mariner's Museum, the nation's official maritime museum located at Newport News, Virginia, provided a historic location for the Society's 2011 Conference. Held in its spacious Huntington Room, the conference drew members from the region and across the country. Excellent accommodations were provided at the nearby Point Plaza Suites, whose Dee Garland also helped to arrange for the Friday night meet-and-greet at Fiorello's Italian Restaurant.

Conference organizer Nyle Monday was assisted by Janice Raber, Bob Rusnak and Sid Macken, and the team provided an excellent speakers program as well as several exhibits. The furthest traveled attendees were from Australia, while several Californians made the trip across the country also. We were happy to welcome our friends Maria Hults, Bob Rickie and Jo Ann and Zig Zighan from Beneath The Sea in New York.

The HDS was delighted to have several displays at the conference. Vintage scuba displays were provided by Bob Rusnak from New York and Jim Christopher from North Carolina. Bob had also arranged for an Oceaneering Jim Suit to be on display next to the speaker platform. Phillip Brashear, son of Carl Brashear, Navy Master Chief Petty Officer and Master Diver, was on hand to talk with attendees about the non-profit Carl Brashear Foundation (www.carlbrashear.org) established to bring Carl's inspirational story to young people around the country. HDS President Steve Kushner handled the HDS booth which was stocked with apparel and diving history books.

Nyle opened the conference on Saturday morning and explained that the advertised speakers program had changed a little due to scheduling conflicts. Sylvia Earle had been called to Tokyo by the National Geographic Society and Pierre Yves Cousteau was unable to leave Paris due to business obligations.

The morning started off with Janice Raber who gave some historical background on the wreck of the *Black Warrior*, a wooden steam-fitted paddle wheeler that sunk in 1859 in 35 fsw while trying to enter New

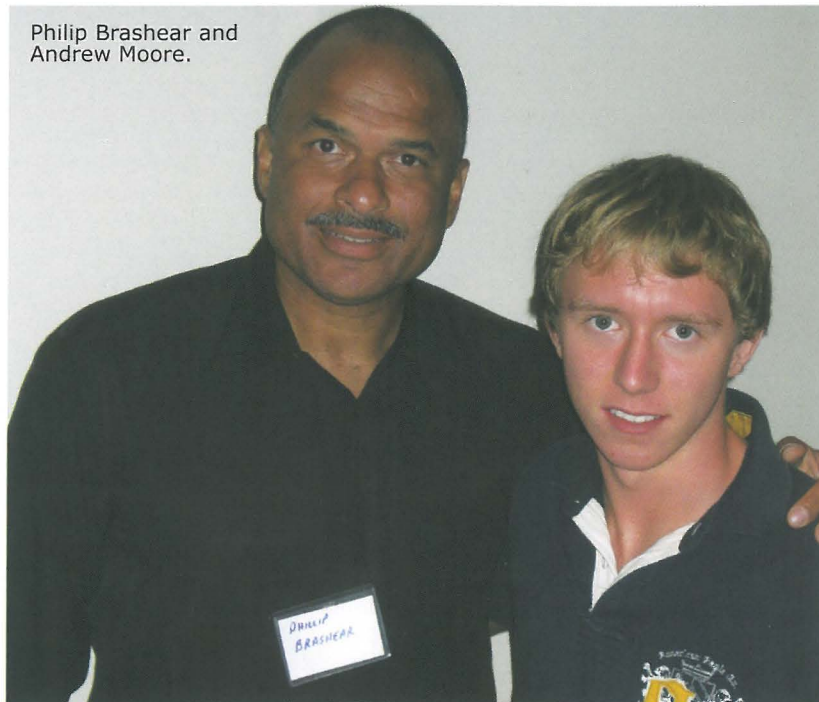
York Harbor in a fog. She then introduced HDS East Coast Representative, Bob Rusnak, who is a popular and well known East Coast classic equipment diver. Bob presented a film on a team from the Long Island Divers Association diving a USN Mark V to execute a history- making dive on the *Black Warrior* shipwreck. Using Captain Bill Reddan's boat, the *Jeanne II*, as the diving platform the boat crew and film entourage left Sheepshead Bay in Brooklyn to execute the dive and film the event. Bill Pfeiffer was the Mark V diver, along with tenders, and support divers. Bob described how he and Captain Steve Belinda conceived the idea and the detailed preparations involved in selecting the participants, securing the equipment, and arranging a date. The weather was not cooperative on shooting day causing harrowing complications during the dive. However Bob's presentation again showed the value of these living history dives that keep diving history in the public's eye.

Bob was followed by legendary "King of The Deep," Captain Steve Belinda, who presented film clips from his numerous expeditions to the wreck of the *Andrea Doria* aboard his research vessel, the *Wahoo*. The *Doria* was on a return voyage to New York when it sank after a collision with the *Stockholm* in 1957. Located about 100 miles off the coast, it is 170 feet down to the wreck which lies in 240 feet of water. Known as the "Mount Everest" of wreck diving, the *Doria* has claimed several lives over the years. Steve provided a live narration to footage shot by Billy Deans, who used a scooter to navigate over the 700 foot long wreck. Noting that the dive site lay in shipping lanes Steve said that the chance of his dive boat being run down by container vessels and tankers was always a constant threat. He also noted that the actual dive is not the toughest part. The 100 mile journey out to the site holds that honor. Captain Steve discussed some methods used in penetrating this dangerous shipwreck including progressive penetration, which is accomplished through frequent visits to the wreck, following a similar dive plan each time and learning the wreck so well that one can dive it literally in the dark. With humorous anecdotes, personal memories and plenty of pictures, Captain Steve showed us the sinking, an actual dive on the wreckage, and many of the artifacts recovered, bringing the reality of this east coast shipwreck to us all.

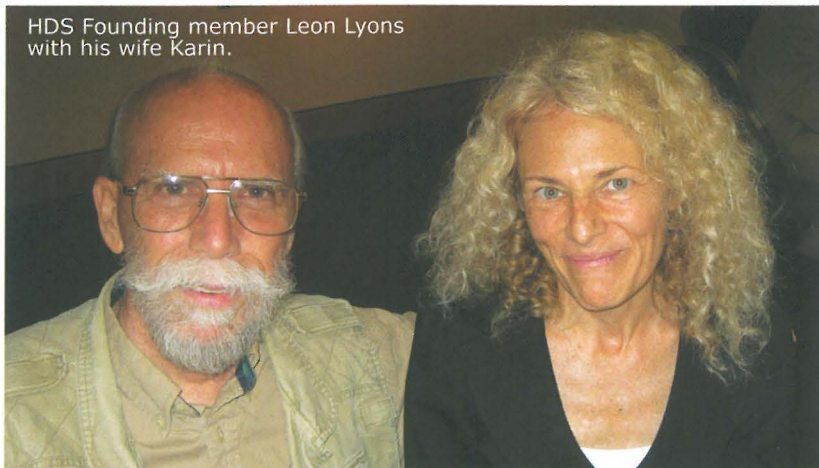
Gene Ritter of New York's Cultural Research Divers was the day's third speaker. The Research Divers had come to national attention with their discovery and recovery of the Dreamland Bell, which was lost when Coney Island's Dreamland Pier burnt down in 1911. Gene explained the origins of the group and his on-the-job education as an archeological diver. Gene discussed his background in commercial diving, detailed some of the early finds and the Cultural Research Divers' educational efforts within the local community. All this led up to the Dreamland Bell and its surprising connection with the *USS Monitor*: the bell and parts of the *Monitor* were both made in the same foundry in New York.

The fourth speaker had very strong ties to the Mariner's Museum. Captain Bobbie Scholley, USN (Ret.), headed up the team of USN divers who salvaged the turret of the *USS Monitor* in August, 2002. Bobbie

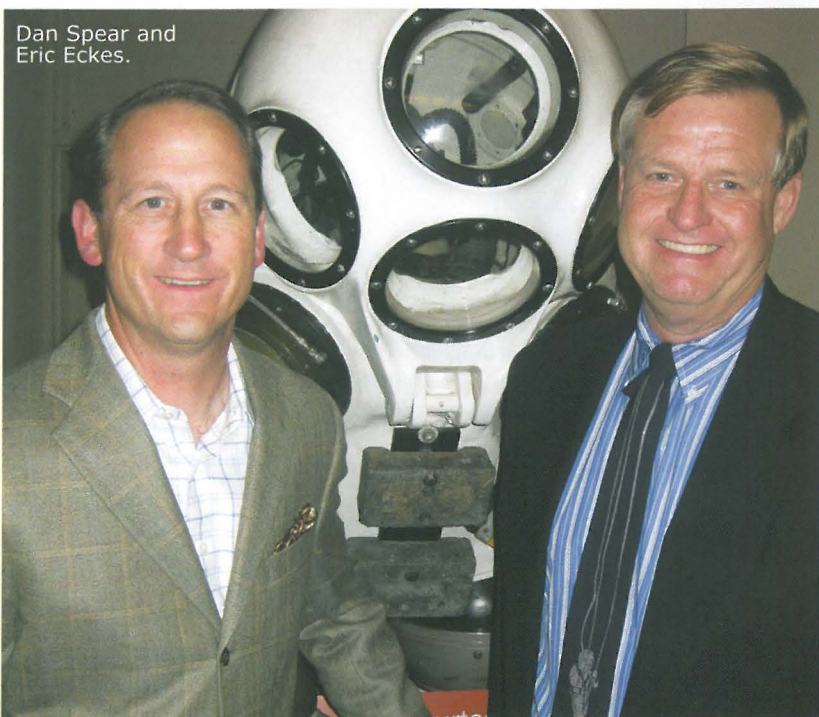
Philip Brashear and Andrew Moore.

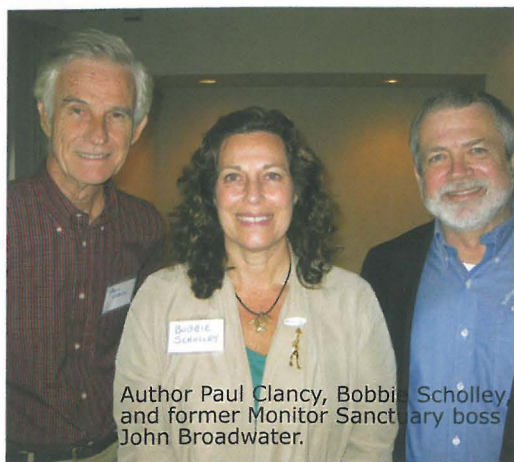


HDS Founding member Leon Lyons with his wife Karin.



Dan Spear and Eric Eckes.





Author Paul Clancy, Bobbi Scholley and former Monitor Sanctuary boss John Broadwater.

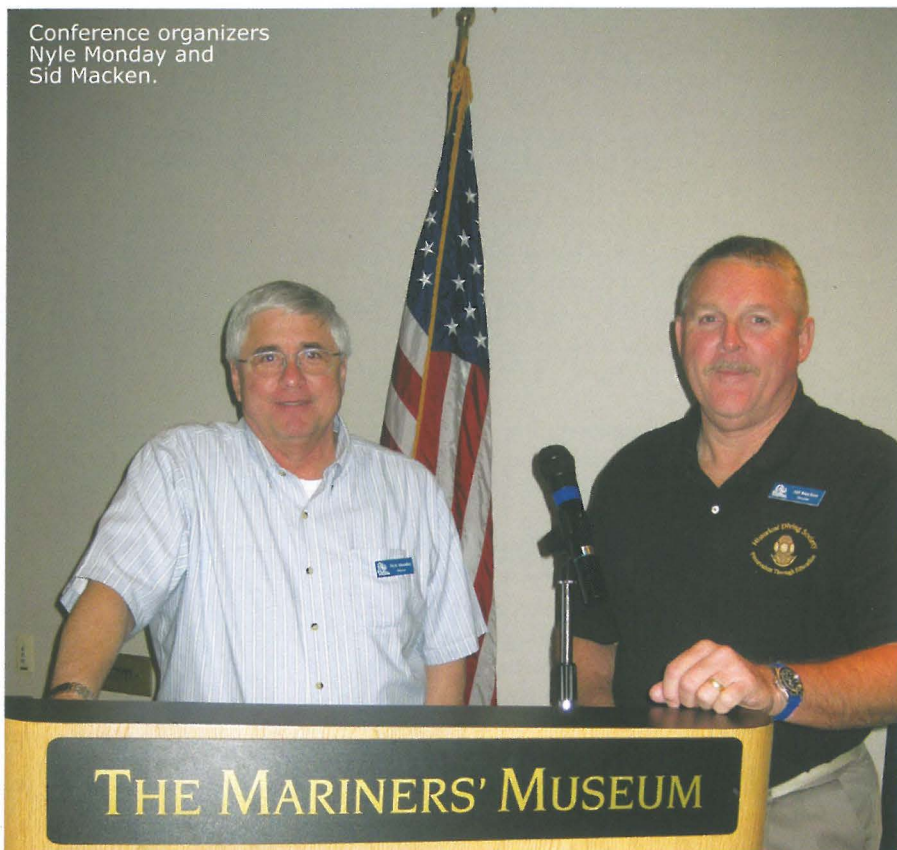
explained the composition of the chain of command for the operation, and how the USN had viewed the operation as a valuable training exercise. She was joined by Mariner's Museum staffer, John Broadwater, Chief Archaeologist at the National Oceanic and Atmospheric Administration's (NOAA) Office of National Marine Sanctuaries, who discussed the cooperation between the Navy, Mariner's Museum, and NOAA on the *Monitor* salvage.

The day's final speakers were Terrance Tysall and Amy Giannotti who introduced the Cambrian Foundation and explained its involvement with the *Monitor* salvage. The Cambrian Foundation is a non-profit educational organization that uses deep and technical diving to support aquatic research and is the only non-governmental organization authorized to dive and conduct research on the *Monitor* site.

The Society's Annual Awards Banquet was also held in the Huntington Room later that evening, with a fine meal prepared and served by Catering Concepts of Virginia Beach. Members had the opportunity to enjoy a fine meal while visiting with friends and fellow enthusiasts from around the country.

HDS Chairman Dan Orr presented the HDS Nick Icorn Diving Heritage Award to Ryan Spence of Flashback Scuba for his work in preserving and displaying the equipment designed and used by Captain Jacques - Yves Cousteau.

Unfortunately, the scheduled Awards Banquet speaker Dr. Sylvia Earle was called away on urgent business, but on Friday morning Bob Rusnak ran into long-time HDS member Ralph Wilbanks in the hotel lobby. Ralph is an underwater archaeologist who works with author Clive Cussler in his never-ending search for submerged secrets. Hearing that HDS needed a Banquet speaker, Ralph invited Sid Macken and Leslie Leaney to his room and showed them a variety of presentations he had on the salvage of the *Hunley*. Knowing an historic opportunity when they see one, such as the lead divers involved with the recovery of the *Monitor* and the *Hunley* at the same HDS banquet, Sid



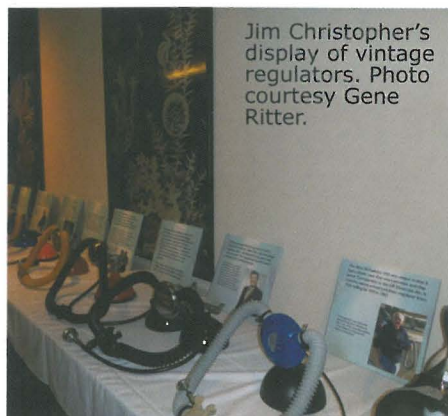
Conference organizers Nyle Monday and Sid Macken.



Speakers Gene Ritter and Bob Rusnak with Oceaneering's JIM suit display.



Several members of the Women Divers Hall of Fame attended the Conference: (L-R) Bobbie Scholley, Jo Ann Zighan, Sally Wahrmann, Maria Hults, Arman Zighan, Betty Orr, Vreni Roduner and Janice Raber. Photo courtesy Gene Ritter



Jim Christopher's display of vintage regulators. Photo courtesy Gene Ritter.



Beth Ritter and Janice Raber enjoying the event. Photo by Gene Ritter.

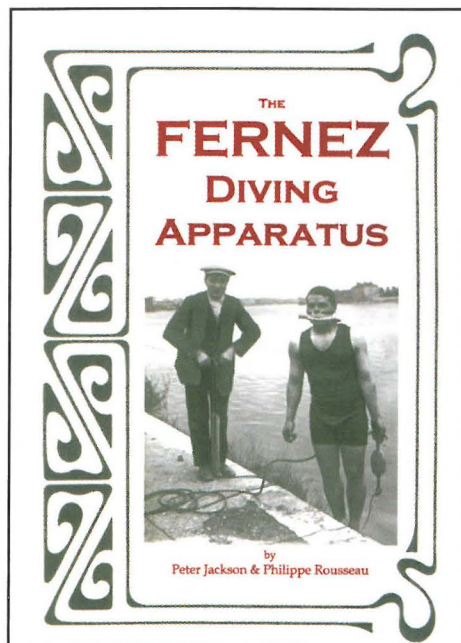
and Leslie accepted Ralph's offer to fill in for the missing Sylvia. As Bobbie's presentation had covered the famous shipwreck from the Northern side of the Civil War, it seemed fitting that Ralph would be talking about the Confederacy's most famous wreck, the *H. L. Hunley*, the first submarine to sink a ship in wartime. From the podium Ralph noted "that I've heard about as much Yankee talk as I can stand in a day," and his subsequent presentation was loaded with both humor and history, keeping the dinner audience on the edge of its seat.

The expansive maritime displays in the museum enhanced the experience for all attendees. Particularly popular was the exhibition detailing the discovery and recovery of the turret from the *USS Monitor*. On Sunday, lucky attendees who were able to stay over were taken on a private behind-the-scenes tour of the preservation and restoration of salvaged items from the *Monitor*. After having listened to speakers actually involved in the recovery efforts the day before, the tour was particularly meaningful.

The Society would like to thank Bill Cogar, Priscilla Hauger, Anna Holloway, Lyle Forbes and John Broadwater for their kind assistance in making this year's conference a rousing success, and we look forward to working with them on many projects in the future. 🐠

—Staff Report

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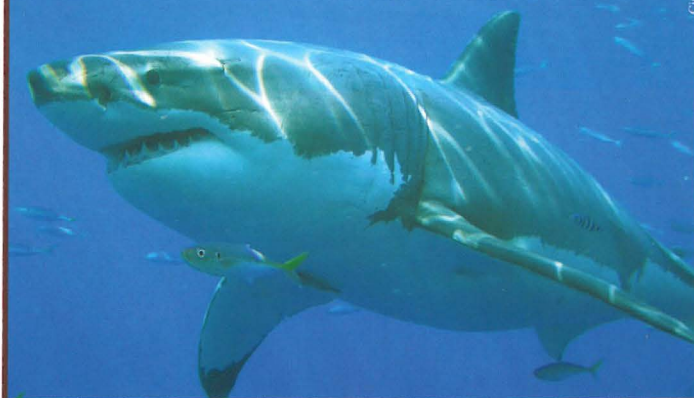
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Another HDS Once-in-a-Lifetime Event

International Vintage Divers Gather in Lake Marx, Germany

On June 18th and 19th 2011, the 5th Annual International Vintage Divers Event hosted more than 35 vintage diving collectors in Neustadt/Wstr. and at Lake Marx, Germany. This event has been established as the largest of its kind in Europe, and thanks to the support of our local diving club, STC Nautilus, we had enough volunteer helping hands to run the operation.

**By Franz Rothbrust
HDS Germany**

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Dr. Thomas Mueller
prepares to dive his
self-contained Drager
DM40 with safety
diver Jan Thomassen.

On Saturday, June 18, individual groups from around the globe arrived in Neustadt. Vintage enthusiasts represented such countries as Australia, Czech Republic, England, France, Germany, Poland, Netherlands and USA. Many attendees were HDS members in their respective countries. In the early afternoon 13 divers and collectors from Germany met and founded the German Historical Diving Society. A report by Leslie Leaney on this "historic" event appeared in issue 68 of *The Journal of Diving History*.

On Sunday, June 19, the collectors displayed their historic treasures at Lake Marx. It was fantastic to see the huge variety of old diving gear, and plenty of trading and selling occurred. Some enthusiasts took vintage dives in Lake Marx, even with the weather unusually windy and cold for the time of year. Dr. Thomas Müller had brought his



Schrader Mark V and a Drager available from David Dekker.



Jerom Gomplemann with a Loosco set.



Czech suit mask with internal wiper blade.



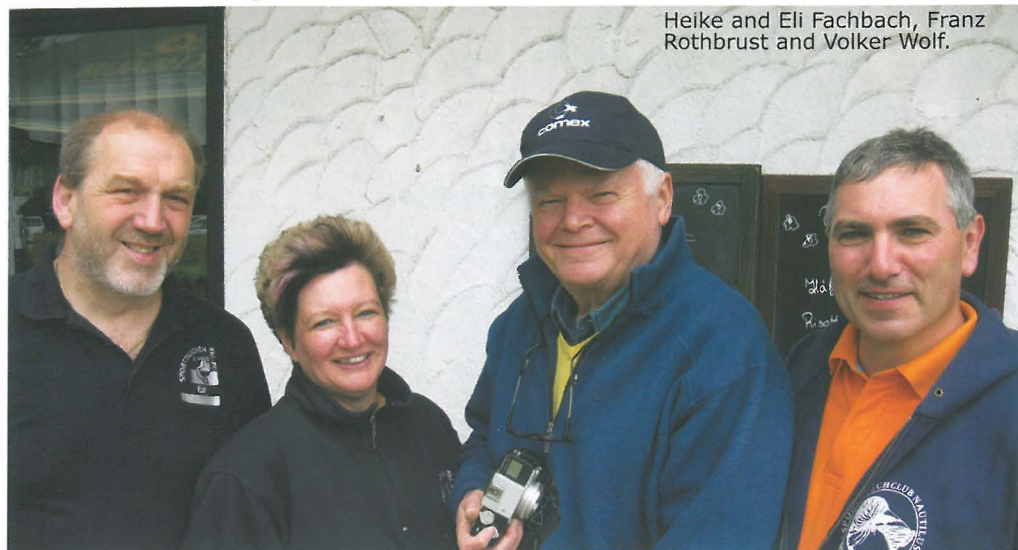
HDS France member Jean Grépinet stocking up Regulator Alley.



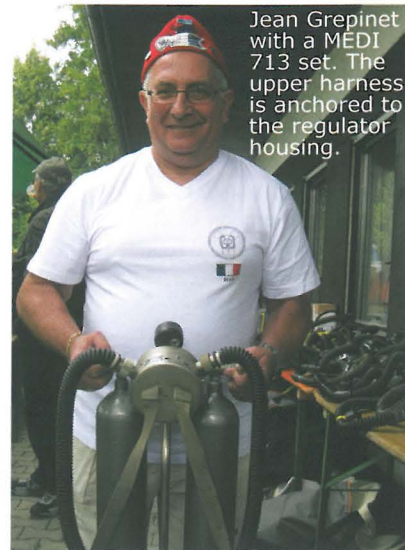
French CG45, Swiss Air Master and Czech Chirana.



HDS UK's Peter Dick with a Czech Aquacentrum helmet.



Heike and Eli Fachbach, Franz Rothbrust and Volker Wolf.



Jean Grepinet with a MEDI 713 set. The upper harness is anchored to the regulator housing.

well restored Dräger DM 40 self-contained standard set and took an underwater walk with it.

The largest group of foreign divers attending were from the HDS Czech Republic. Their chairman, Jiří Trpík, was present, and I'd like to thank Oldřich Lukš for helping me to organise their stay in Neustadt. The Czechs were here for the first time and brought very interesting vintage scuba gear and also standard gear from their country. Like all good guests they brought a gift, and it should be remembered that a good barrel of Czech Pilsner showed up from the depths of their equipment transporter and was duly emptied graciously by all the attendees at Lake Marx. Cheers to the Czechs!

I was very happy and proud to welcome Peter Dick from UK, and Leslie Leaney from USA, to Neustadt for the first time. Peter and Leslie publish the HDS magazines in UK and USA respectively and they had both given me a lot of support during the last year in helping our German division of the HDS get started. Peter Katz and his wife made the longest trip to Germany, travelling from Australia, so a special thanks goes to them for coming! Many guests were veterans of earlier International Vintage Divers Events. Amongst them were Jean Grepinet, Eric Souverville and Pierre Meyer from France, and David Dekker and Jeroen Gompelman from the Netherlands. Wieslaw Wachowski, President of the HDS in Poland, displayed Polish double hose regulators and an open diving helmet replica. The same model is shown as the HDS Poland logo.

The event concluded on Sunday evening at a famed local traditional restaurant.

Oldřich Lukš of HDS Czech Republic gave a presentation about HDS activities in that country and about Czech diving equipment. He was followed by Wieslaw Wachowski of HDS Poland, who spoke about the history of diving in Poland and Polish vintage SCUBA equipment from 1957 to the 1980s.

This year's event will be held on June 23rd and 24th. As I read the reports from visiting attendees about our local restaurants and wines, everyone seems to have been impressed. To raise the cuisine bar a little higher I have decided to host the 2012 meals at one of Neustadt's best restaurants, and I extend an open invitation to all those interested in vintage diving equipment to join us.

For more information, contact the author via email at franz.rothbrust@htg-ev.de. ☛



(L to R) David Dekker, Peter Katz, Josef Dvoracek and Jarda Knotek review used diving books for sale.

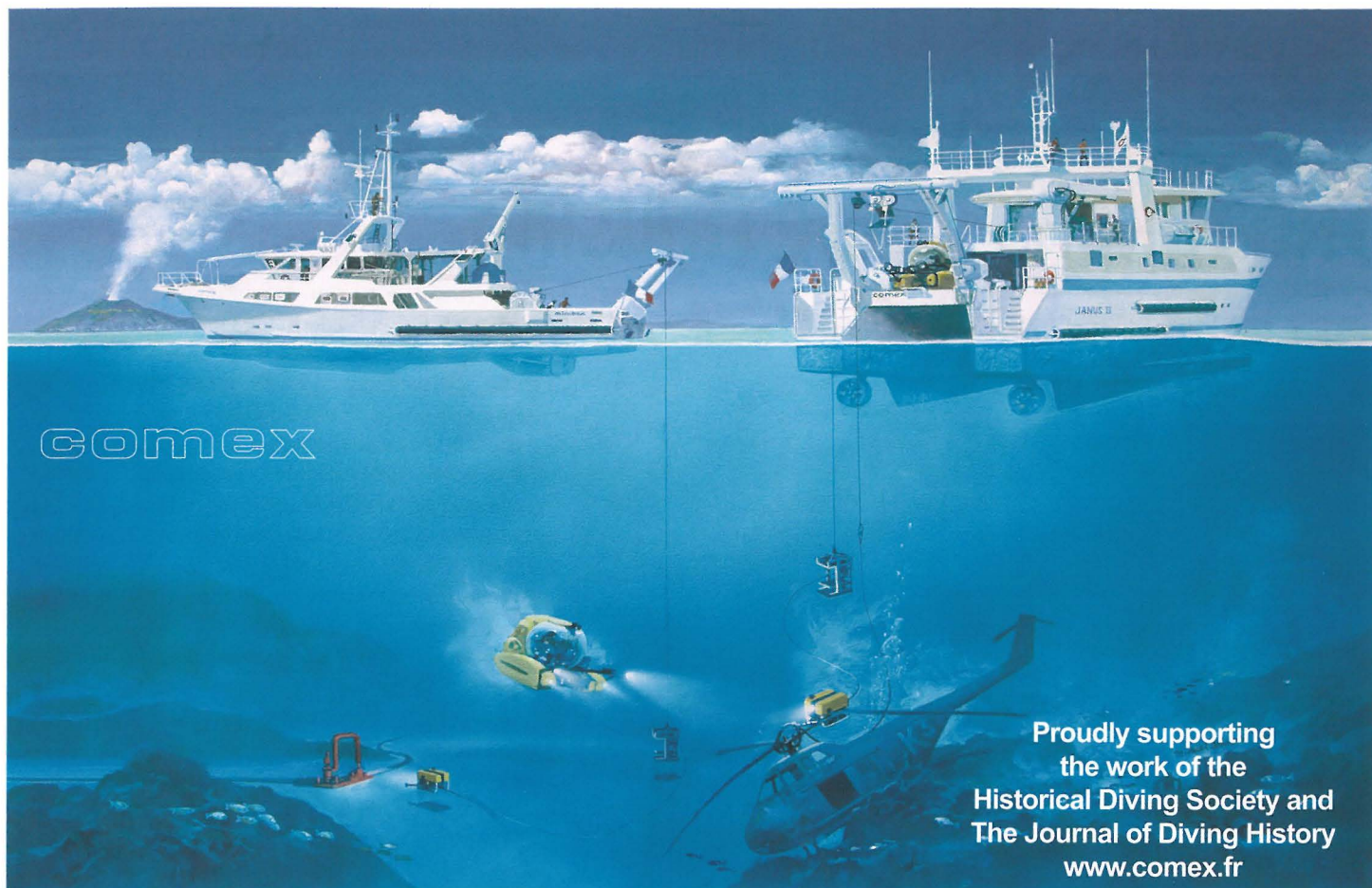


HDS France VP Eric Souverville with a Josef Vorisek triple cylinder unit and KP14 regulator.

HDS Poland's Wieslaw Wachowski and his charming wife with a model of the Society's logo helmet.





Czech Army dry suit.



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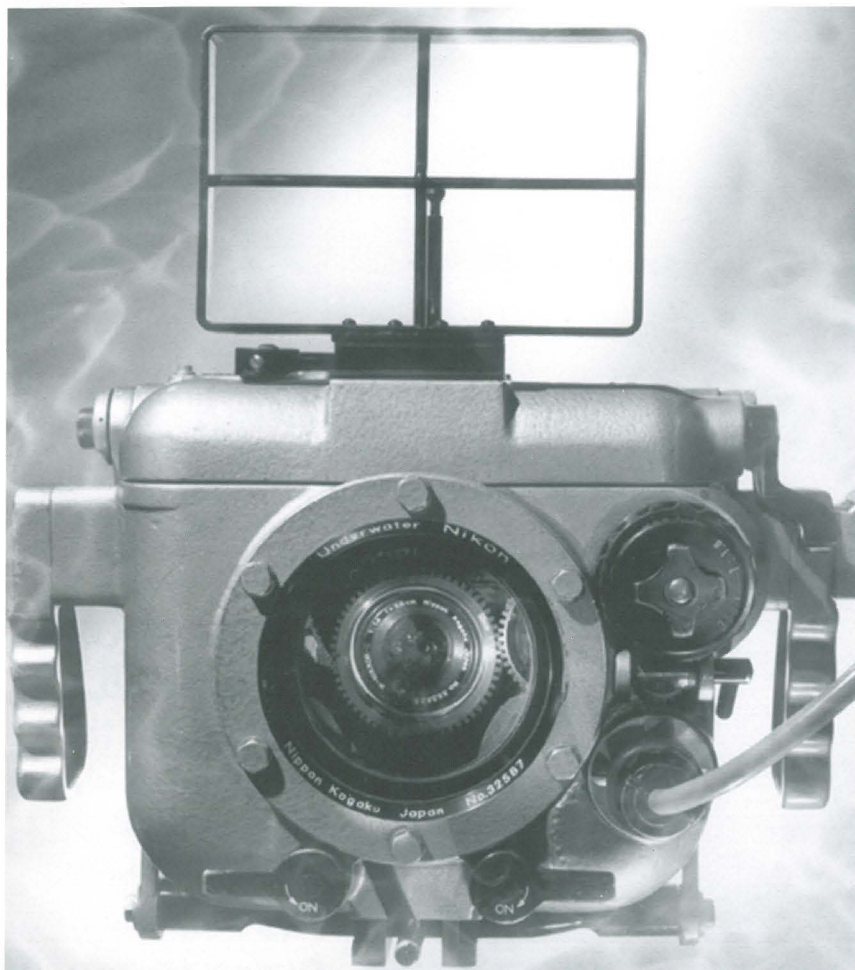
presents

THE SUBMARINE LENS

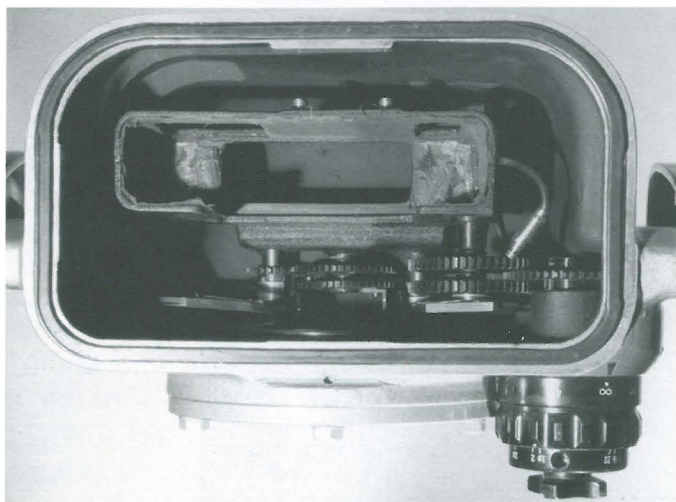
The Nikon Marine Housing

Story by Sid Macken

Photos courtesy Nikon Historical Society,
Nikon Journal #52, June 30, 1996



(Above) The
Nikon Marine
Housing



(R) Inside
view showing
the camera
installed

Nippon Kogaku, the Japanese manufacturer of Nikon cameras, is well known in the diving world for the Nikonos series of amphibious cameras. Both the Nikonos and the superlative Nikon F single lens reflex camera fostered a cottage industry of housings and other accessories. Prior to the introduction of the Nikonos, however, Nikon had been involved in the manufacture of underwater photographic equipment. Nikon's initial venture into the realm of underwater photography, however, was a little known housing for Nikon's S series of rangefinder cameras.

Photos of the housing appeared in the 1956 edition of Jerry Greenberg's *Underwater Photography Simplified* and a few other diving publications. The Nikon Marine housing, however, is extremely rare and appears to have never reached the open market. Only two are known to exist in the United States and only one of those is complete with a full kit of accessories.

Inquiries to Nikon went unanswered. Nikon's website (imaging.nikon.com/history/chronicle/history-nikonos/index.htm) contains a brief reference to the housing and a low resolution photo, but it was the chance finding of an internet link to the Nikon Historical Society which lead me to the only information of any extent that exists on this camera system. An article by Fred Krughoff, in the June 30, 1996 issue of the Nikon Historical Society's *Nikon Journal*, provides some insight into the Nikon Marine camera system.

In 1954, Nikon introduced the S2 rangefinder camera followed in 1957 by the SP, and in 1958 the S3 models. These cameras were of similar design to the famous German Leica rangefinder cameras, and were capable of accepting interchangeable lenses. The S2 was Nikon's first camera to produce full frame (24mm x 36mm) 35mm images and the first Japanese camera to offer a film advance lever rather than a film wind knob. The S series came into being just as worldwide interest in underwater photography began to rapidly grow. Nikon entered the fray in 1956 with the Nikon Marine housing.

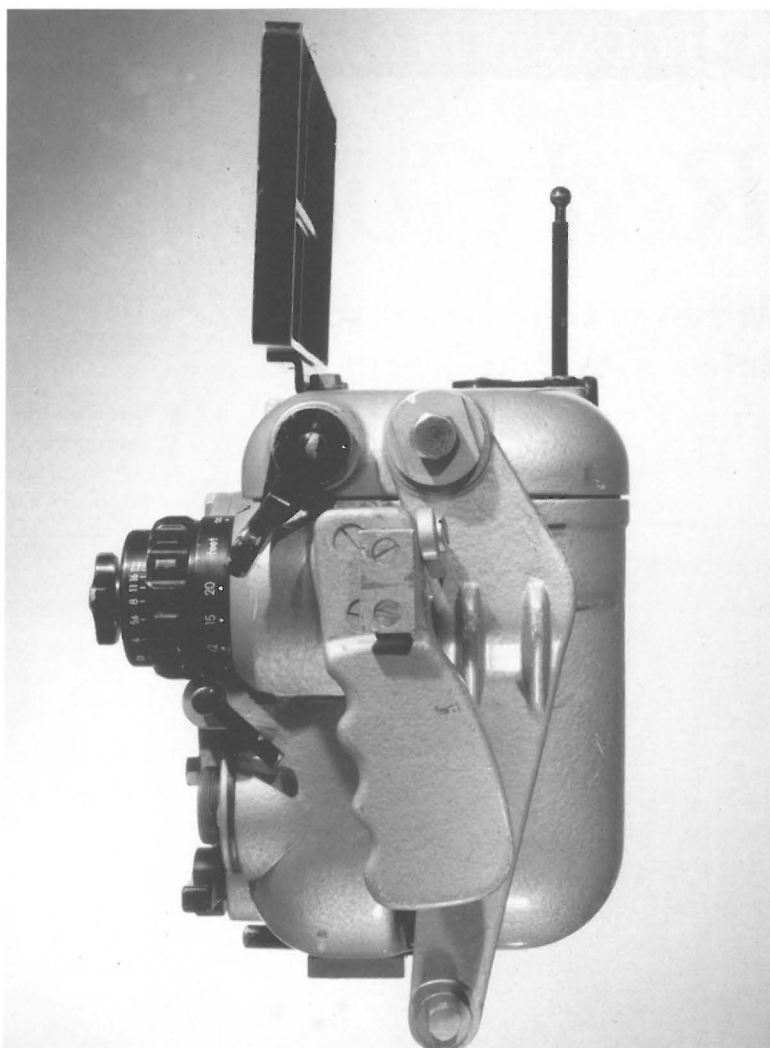
The Nikon Marine housing debuted shortly after Hans Hass's Rolleimarine housing and the Fenjohn Bantam housing to which it bears close resemblance. The Rolleimarine and the Nikon Marine housings consist of a lower chamber and a lid which is held in place by a lever and cam

system. The Nikon Marine's focus and aperture controls are mounted co-axially much the same as the controls on the Bantam. All three housings are cast aluminum, technically advanced, of very high quality, and allow the use of interchangeable filters.

Krughoff quotes from Cooper and Abbott's 1974 Nikon Nikkormat Handbook, that the Nikon Marine housing was "made by N-K for (the) Japanese Government," and goes on to say that there is no other "authoritative information about the actual use or distribution of the housing by anyone from EPOI (Nikon)."

There are several unique aspects to the Nikon Marine system. The shutter release is located on the left hand side of the housing. A long shaft inside the housing lid provides a link to the camera's shutter release, which is located in the standard position on the right side of the camera. Offhand, I can't think of any other commercially made housing with this configuration. The housing has an external frame counter which, interestingly enough, must be advanced by hand each time a picture is taken as it has no direct connection to the camera. The one known example of the Nikon Marine housing with its complete kit of accessories (in canvas bags à la Rolleimarine) includes dual battery-capacitor (BC) flash units. The flash heads are connected to the housing via a cable and T-adaptor. The flash units also bear a striking resemblance to the later Nikonos flash unit. While the S series of cameras accept interchangeable lenses with focal lengths ranging from 28mm to 135mm, the housing kit includes gear sets for only the 28mm, 35mm, and 50mm lenses.

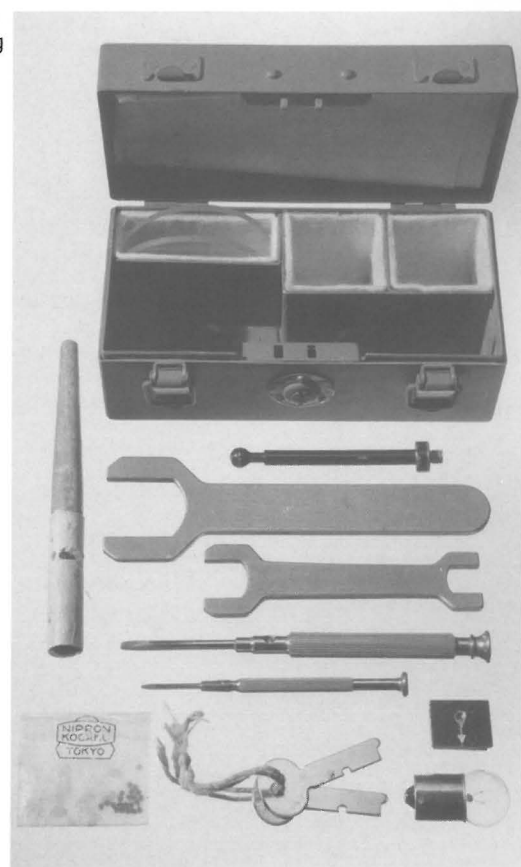
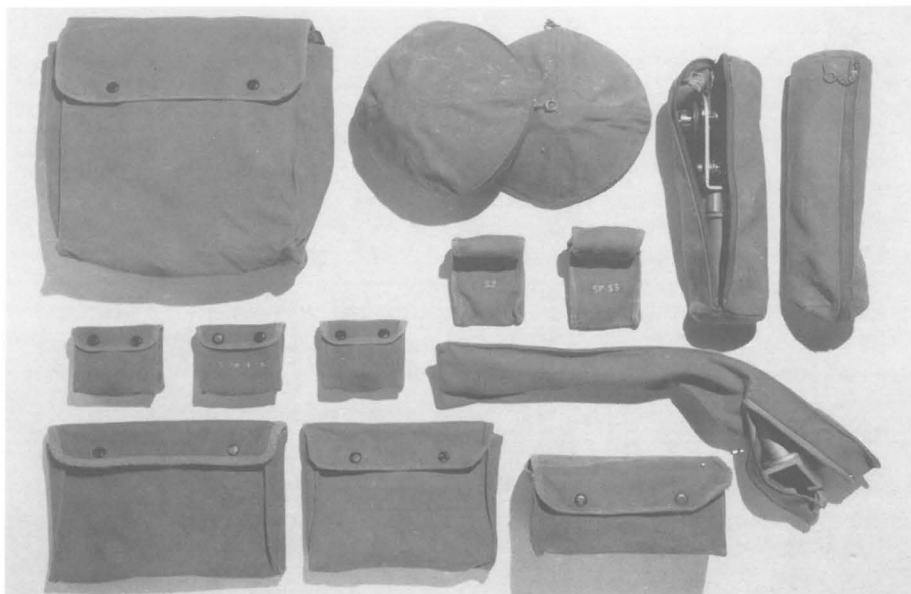
The Nikon Marine housing was finely crafted and accepted a variety of camera and lens combinations. At the time of the housing's introduction, Nikon's reputation as a high quality manufacturer of cameras and lenses was on the rise. The Nikon Marine would have been a fine addition to any professional underwater photographer's arsenal of cameras had it ever reached the open market. Why it did not is not understood. Its very limited production, only for the Japanese government or military, is odd for such a well made system, but it provides us with a mystery to try to unravel. 🐡



(Above) Left side view of the housing showing the shutter release, cam, and focus/aperture controls.

(Below right) Tool set that accompanies the housing.

(Below left) Accessory bags.



Red Gold

Written by **Leonardo Fusco**

Reviewed by **Bret Gilliam**

This is an interesting book, well worth reading, and details a largely unreported period in diving history. Over the years I've been asked to review dozens of books and it's usually a fairly traditional process. *Red Gold* chronicles a unique period of history that has really never been told before. HDS's own Leslie Leaney writes one of the two Forewords and provides a succinct overview to Fusco's narrative. The book also is illustrated with some well done period photography underwater as well as some seductively beautiful images of Italy.

This 271-page tome is about the micro-industry of harvesting red coral from deep depths by divers that began in a by-gone era. The lucrative, but destructive and environmentally damaging practice, eventually leads the author to reassess his values and condemn the carnage. He then devotes his later years to speaking out and raising awareness of the red coral depletion and the need to protect the species from further eradication.

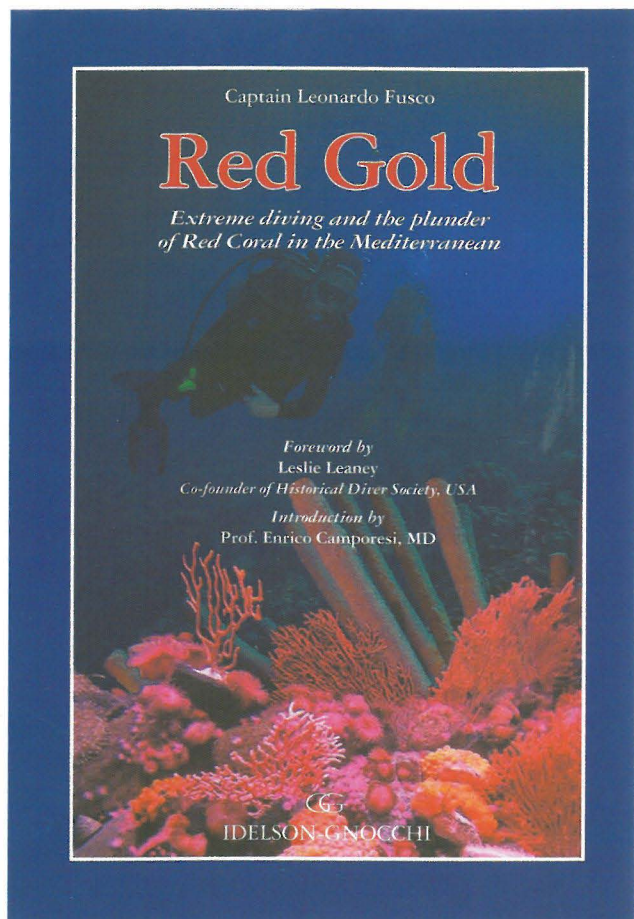
Fusco began scuba diving at age 23 in Italy. His initial fascination was with the Blue Cave at Palinuro that he explored as a freediver in 1949 at age 18. He starts simply as a fascinated freediver and predictably segues into spearfishing. After losing a grouper that bested him while on a breath hold dive, he fortuitously bumps into Jean-Pierre Broussard who loans him an early "aqua lung" and gives him the ten-minute "all you need to know about scuba diving" briefing before turning him loose at Spartivento to retrieve his fish. Broussard was the son of Cousteau dive team member Henri Broussard and one of the true pioneers.

Fusco finds his dead fish and then decides to explore the deeper depths that had been a barrier due to breath holding. The real story of the book now unfolds as he discovers "a surreal vision, a carpet of the 'royal coral'... *Corallium rubrum*..." And the labyrinth narrative begins to unfold as the monetary reward of harvesting the red coral is immediately realized. He retrieves some samples and shows them to his friend Ugo Silva who is in the boat. Silva happens to own one of the premier jewelry retailer stores in Milan and confirms that Fusco has indeed found the mother lode of "Red Gold". And we're off to the races as Fusco teams up with other divers and begins to apply more disciplines and protocols to dive deeper and longer. His groups are some of the first to use helium for deep work and he later is introduced to rebreathers in the early 1970s.

Along the way, the infamous Hans Hass makes a gruff appearance, as do other European diving notables. Hass is principally responsible for raising the alarm for restraint and conservation. Fusco learns his lesson well from his mentor. His conscience and true love of the sea motivates him to stop dragging up red coral and he becomes an impassioned advocate for conservation and an outspoken voice for preservation. *Corallium rubrum* is officially established as an endangered species through Fusco's tireless campaign. It's a happy ending.

It's always refreshing to read first-hand accounts of pioneering divers who "redeemed" themselves. Almost all of us of a certain age started diving as spear fishermen and many of us got involved in activities that were "politically correct" then... but as we gained knowledge and made ourselves aware of the real issues of ocean conservation, we changed our behavior. Fusco's story is personal and combines his rich love of the sea and diving with a unique perspective on his Italian homeland and the cadre of divers that he did his explorations, and enlightenment, with as they matured.

His outspoken advocacy for the red coral's protection is what makes a diving pioneer truly special. You will be enriched by his tale. 🐠



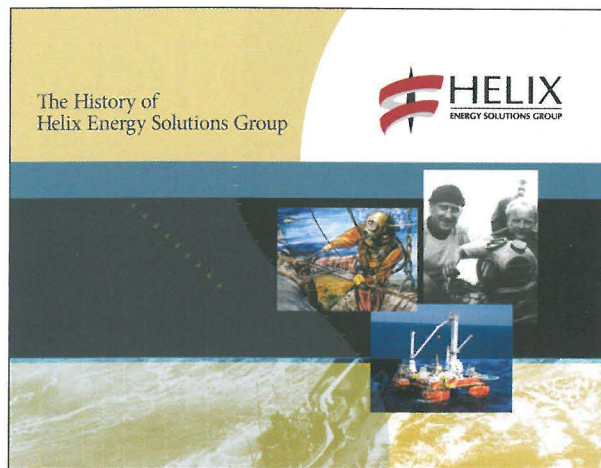
The History of Helix Energy Solutions Company

Reviewed by **Leslie Leaney**

This hardbound 27 page book gives an overview of the origins of the company, which are in Cal Dive and Oceaneering, up to the modern day. It is a record of the company's history, presented in sections with photos that are historically relevant to the section.

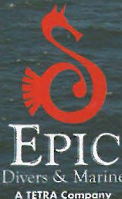
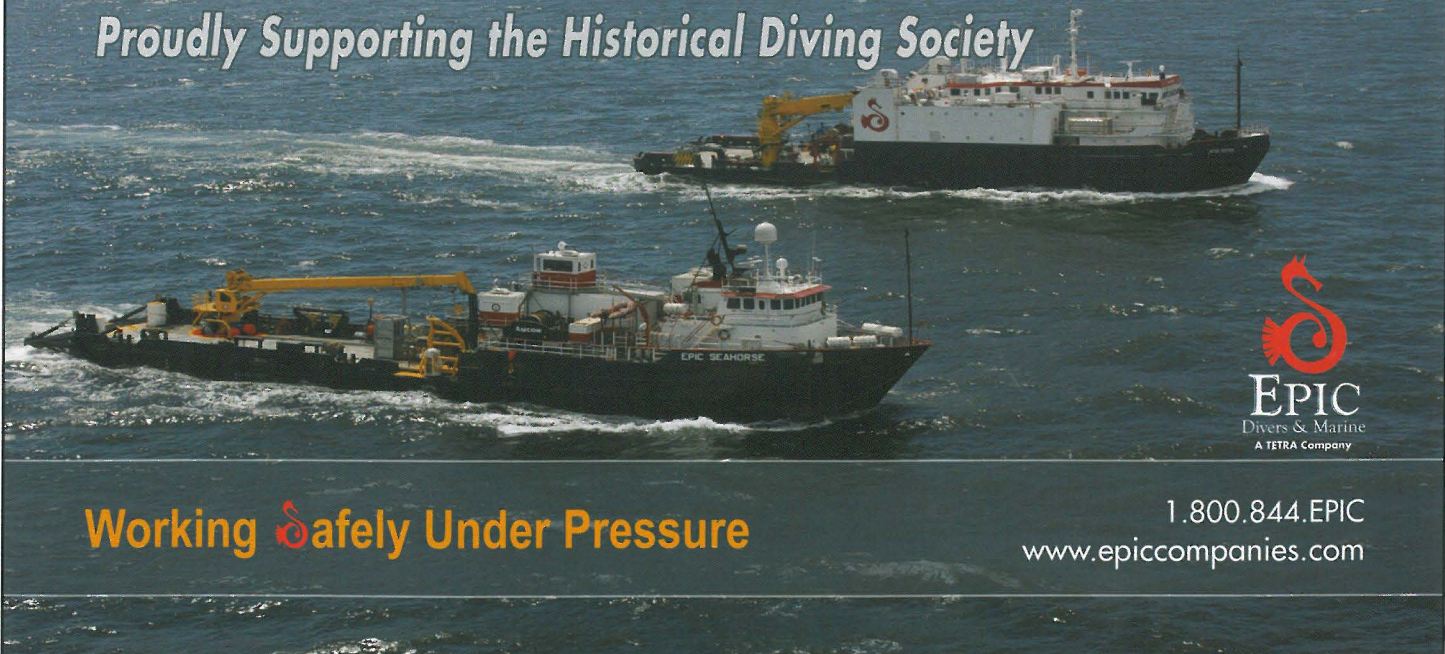
The introduction acknowledges the evolution of the company from "a ragtag bunch of abalone divers" to one of the world's premier marine service contractors and operators of offshore oil and gas properties. The sections titles provide a concise record of content and are titled, The Subsea Industry to 1960; Early 60's: The West Coast Helium Era; Cal Dive is born; Making of an Industry Giant: The Formation of Oceaneering; The Resurrection of Cal Dive; New Leaders Take Cal Dive into the Future; The Dynamic Position Era; 2006 and Beyond: The Forming of Helix Energy Solutions Group; and *Deepwater Horizon* Disaster: Helix ESG Responds Like No One Else.

Some of the early corporate history will be familiar to Society members through the recent two part article in the *Journal* on *Bob Ratcliffe and the Rat Hat*. The historical time line records the split in Oceaneering's Board and the resurrection of Cal Dive by Lad Handelman and his colleagues, its sale to Diversified Energy International of Minnesota, it's return to independent ownership in 1990 and its eventual evolution into Helix ESG. The text highlights the vital roles played by Jerry Reuhl, Jim Nelson, Matt Simmons, Lad Handelman and Owen Kratz in expanding the focus of Cal Dive to also encompass semi submersible vessels and acquisition of oil and gas properties. The book is produced by Helix ESG for private circulation only, and is not available to the general public. This is unfortunate, as it is of very high quality with excellent images. 🐬



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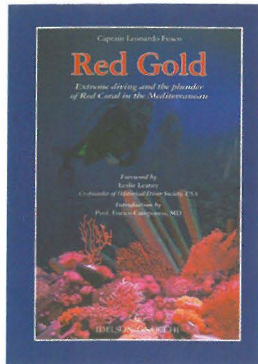
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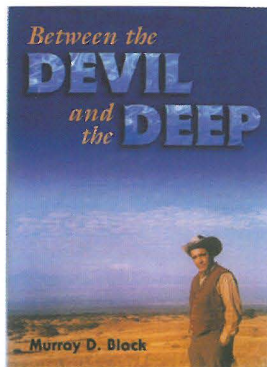
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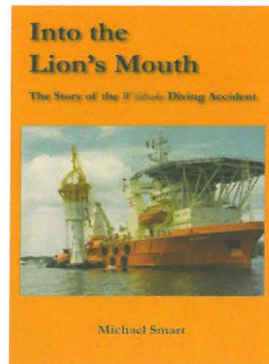
RED GOLD BY LEONARDO FUSCO

A first person account of Leonardo Fusco's career as a diver, translated from the Italian. After his discovery of Red Coral, and his use of the Aqua Lung to harvest it, Fusco adapts to the deep diving life of a Mediterranean Sea gypsy. His journey includes success and tragedy as he moves from deep air diving to rebreathers, interacting with Hans Hass, Gerhard Haux, Professor Buhlmann and others. His later career is spent in the fields of submersibles, hyperbarics, and in efforts to preserve the remnants of the Red Coral colonies so effectively harvested. Introduction by Enrico Camporesi and Foreword by Leslie Leaney. Reviewed by Brett Gilliam in issue 69 of the Journal of Diving History. Hard bound in dust jacket, 271 pages, color and b&w photographs. \$25, plus \$7.50 p&p.



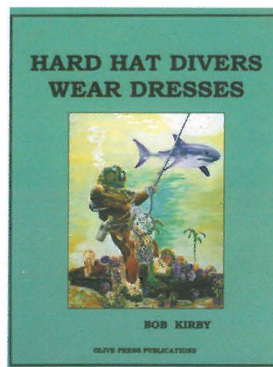
BETWEEN THE DEVIL AND THE DEEP BY MURRAY BLACK

As one of the early pioneers of commercial oilfield diving, Murray Black was an industry leader with an abundance of natural bravery. After graduating from E.R. Cross' Sparling School of Deep Sea Diving, Black progressed through the colorful ranks of the abalone diving and eventually founder DIVCON. History was made with DIVCON, with surface bounce dives past 500 feet as Black consistently pushed the envelope. The book also contains details of Black's post diving career with friends like John Wayne and other characters. nd, 189 pages with b&w photos. \$25, plus \$5 domestic p&p.



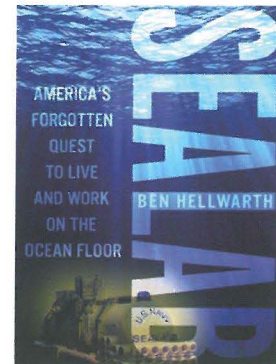
INTO THE LION'S MOUTH: THE STORY OF THE WILDRAKE DIVING ACCIDENT BY MICHAEL SMART

A thoroughly researched and superbly presented story of one of diving's bitterest tragedy's that should be obligatory reading for anyone putting a diving helmet on their head, or thinking about it. "Into the Lions Mouth is truly a well-written work. I found it hard to put down. I can highly recommend this book to anyone, even beyond the offshore industry." - Bev Morgan. "Compelling, harrowing and impressively well researched. A former North Sea saturation diver, Michael Smart not only knows his subject inside out, he explains it all with admirable clarity. Holds the reader's attention to the last page." - Christopher Swann. Soft bound, 2011, 445 pages, color and b&w photos, diagrams, map, index, bibliography, appendix, end notes. \$30, plus \$7.50 domestic p&p.



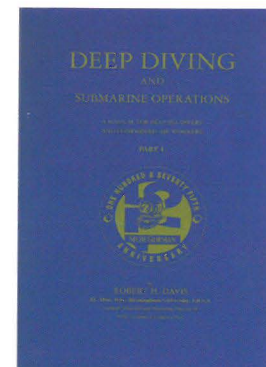
HARD HAT DIVERS WEAR DRESSES BY BOB KIRBY

Bob Kirby's autobiography covering his development of Kirby Morgan dive equipment and his work in commercial, military and Hollywood diving. Contains numerous unique photos from Kirby's career including some of his helmets. As the story of one of diving's few living legends, it will stand as a personal record of one man's unique journey through an industry at its prime. Self published by Kirby, with warts and all. Limited to only 1,000 copies. Perfect bound volume, 262 pages, b&w photos, \$40.00, plus \$12.50 domestic p&p.



SEALAB: AMERICA'S FORGOTTEN QUEST TO LIVE AND WORK ON THE OCEAN FLOOR BY BEN HELLWARTH

An extensive and detailed record of the triumphs and tragedies of the SEALAB program, based upon Hellwarth's painstaking research. Hellwarth, a veteran journalist, interviewed many surviving participants from the SEALAB experiments and conducted extensive documentary research to write the first comprehensive account of one of the most important and least known experiments in US history. His compelling narrative covers the story from its scrappy origins in Dr. Bond's Navy laboratory, through harrowing close calls, historic triumphs, and the mysterious tragedy that brought about the end of SEALAB. Hardbound in dust jacket, 2012, 388 pages b&w photos, index, 19 pages of reference notes. \$28 plus \$7.50 domestic p&p.



DEEP DIVING AND SUBMARINE OPERATIONS BY SIR ROBERT H. DAVIS

Referred to during last century as "The Bible of Diving," the first edition of this book appeared in 1909, as was gradually revised and expanded through the 20th century. This ninth edition was published in two parts to celebrate the 175th Anniversary of Siebe Gorman. Part One is essentially a diving manual and covers all aspects of diving technology, physics, physiology, gas mixtures, diving appliances, gas mixtures etc. Part Two contains accounts of notable diving operations, diver's yarns and a comprehensive history of all forms of diving apparatus. A magnificent two volume set bound in reflex blue embossed with gold text and with matching dust jackets. Both volumes come in a reflex blue presentation slip case. Probably the most famous diving book ever printed. "The best book on diving I have ever read," says Bev Morgan. Reviewed in HDM #6. 712 pages, over 650 b&w photographs, line drawings and illustrations, index. \$200.00, plus \$12.50 domestic p&p.

Conger!

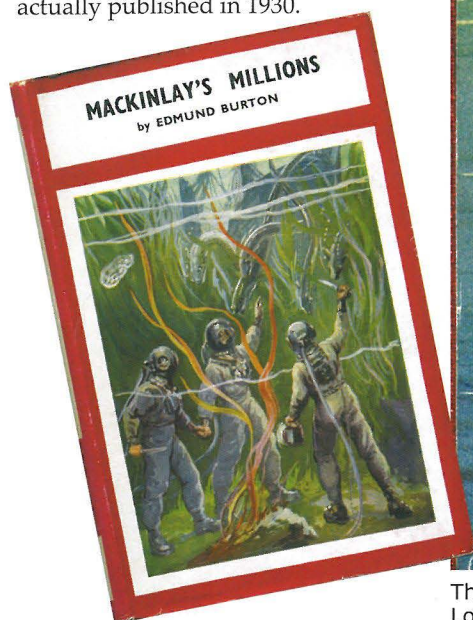
By Peter Jackson

The last two editions of COVER STORY saw our pictorial divers fighting the octopus and the shark, but their collective battle with the "monsters of the deep" did not end there. The slippery conger eel was also seen as a deadly enemy, with which the fictional diver fought many a battle to the death.

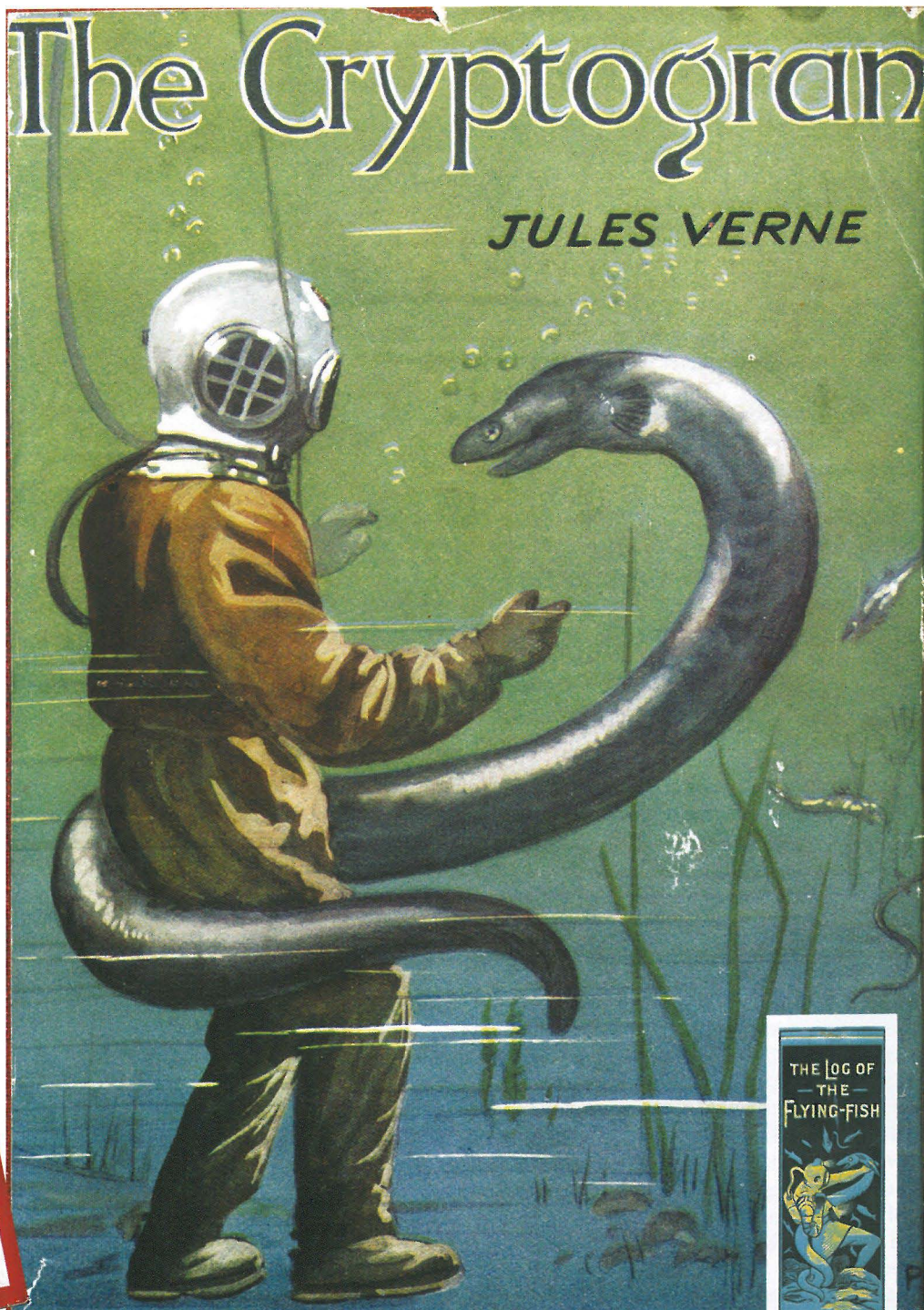
It seems that, in days gone by, the life of a diver was one of constant battle, wresting the spoils of the sea from the many and varied creatures determined not to give them up without a fight. Even giant crabs were in on the action! Without his trusty knife, with which he was almost always depicted, the diver would be lost. Things are not looking too good for the diver on the cover of *The Cryptogram* - he appears to have left his knife behind! 🐟

CORRECTION

In the last issue, we incorrectly gave the publishing date of *The Hunniwell Boys in the Caribbean* as c.1914. It was actually published in 1930.



Mackinlay's Millions, by Edmund Burton. P.R.Gawthorn Ltd. London (not dated) c. 1950



The Cryptogram, by Jules Verne. Samson Low, Marston & Company Ltd. London (not dated) c.1920



The Log of the Flying-Fish, by Harry Collingwood. Blackie & Son Ltd. London 1887

Sea Hunt 2011 Marks 50th Anniversary of Diving's Classic TV Series

By Mike Adams

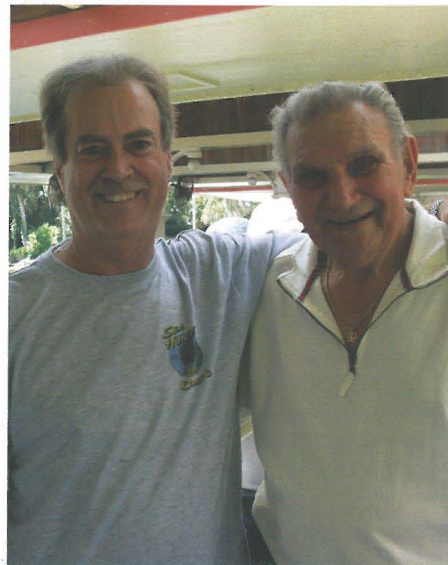
Sea Hunt 2011 was held on May 28-29 at Silver Springs, Florida, to celebrate the 50th Anniversary of the last season of the *Sea Hunt* television series. Underwater scenes from over 100 of the 155 episodes of *Sea Hunt*, which ran from 1958-1961, were filmed at Silver Springs. Twenty vintage diving enthusiasts recreated underwater scenes from the TV show, much to the delight of Silver Springs Theme Park guests, who watched the action from the Park's glass bottom boats. They enjoyed watching knife fights, alligator wrestling, spear gun fights and attacks by a 20-foot anaconda. Members of the original cast and crew were available to show and explain the vintage gear to park visitors.

Alec Peirce brought a large display of *Sea Hunt* memorabilia from his vast collection. A great deal of attention was given to the authenticity of the gear used at Sea Hunt 2011, such as silver/gray or black slick skin wetsuits, single, double and triple tanks with cotton webbing military-style harnesses. Oval masks, Voit Viking fins, Sportsways Navy depth gauges, and cotton-webbing weight belts with wire-over-center buckles were also used. US Divers Vulcan knives with rubber blades were used for the knife fighting scenes. Two-hose regulators such as the Voit 50 Fathom and VR-1 were used to keep the gear as authentic as possible to that used in the TV show.

Peirce judged a contest for the diver who wore equipment that was the closest to the authentic equipment used by Mike Nelson. Gary Reese, with his Voit B4 mask, took the honors and won a complete set of *Sea Hunt* comics. Special guests at the event were actress Betty Frazee, pioneer underwater photographer Bruce Mozert, stunt double Robert Stevens, and Jack McEarcher, who was responsible for *Sea Hunt* set designs. A barbeque was held on Saturday evening for all the cast, crew and special guests.

An A&D Adventures Production of a Dan Benedict film, *Sea Hunt Live 2011*, will soon be released. Cast and crew included Mike Adams, Henry Allen, Jim Bach, Dan Benedict, Karl Gehring, Rick Green, Barb Heil, Becky Hendricks, Alan Klauda, Jerry Lang, Herman Mowrey, Joe Musial, Alec Peirce, Bryan Pennington, Eva Pennington, Gary Reese, Polina Reznikov, Rob Sewell, Diana Stanborough, Joe Strickland, Rob Studnicka, Roger Van Frank, Ron Sivonda, Anna Wahls. Technical advisors were Diana Stanborough and Alec Peirce. Still Photography – Polina Reznikov. Special effects – Joe Musial. Director/Videographer/Editor – Dan Benedict. Co-Producer/Assistant Videographer/Advertising – Roger Van Frank. Executive Producer/Writer/Director – Alan Klauda.

Sea Hunt 2011 was sponsored by Silver Springs Theme Park, Vintagedoublehose.com, Scuba 2000, and the Aquatic Center of Ocala. 🐠



(Above) Mike Adams with *Sea Hunt* stunt man Robert Stevens. All photos courtesy of Mike Adams.

(Left) Gary Reese, winner of the contest for most accurate *Sea Hunt* gear.

(Below) Mike Adams with *Sea Hunt* underwater photographer Bruce Mozert.



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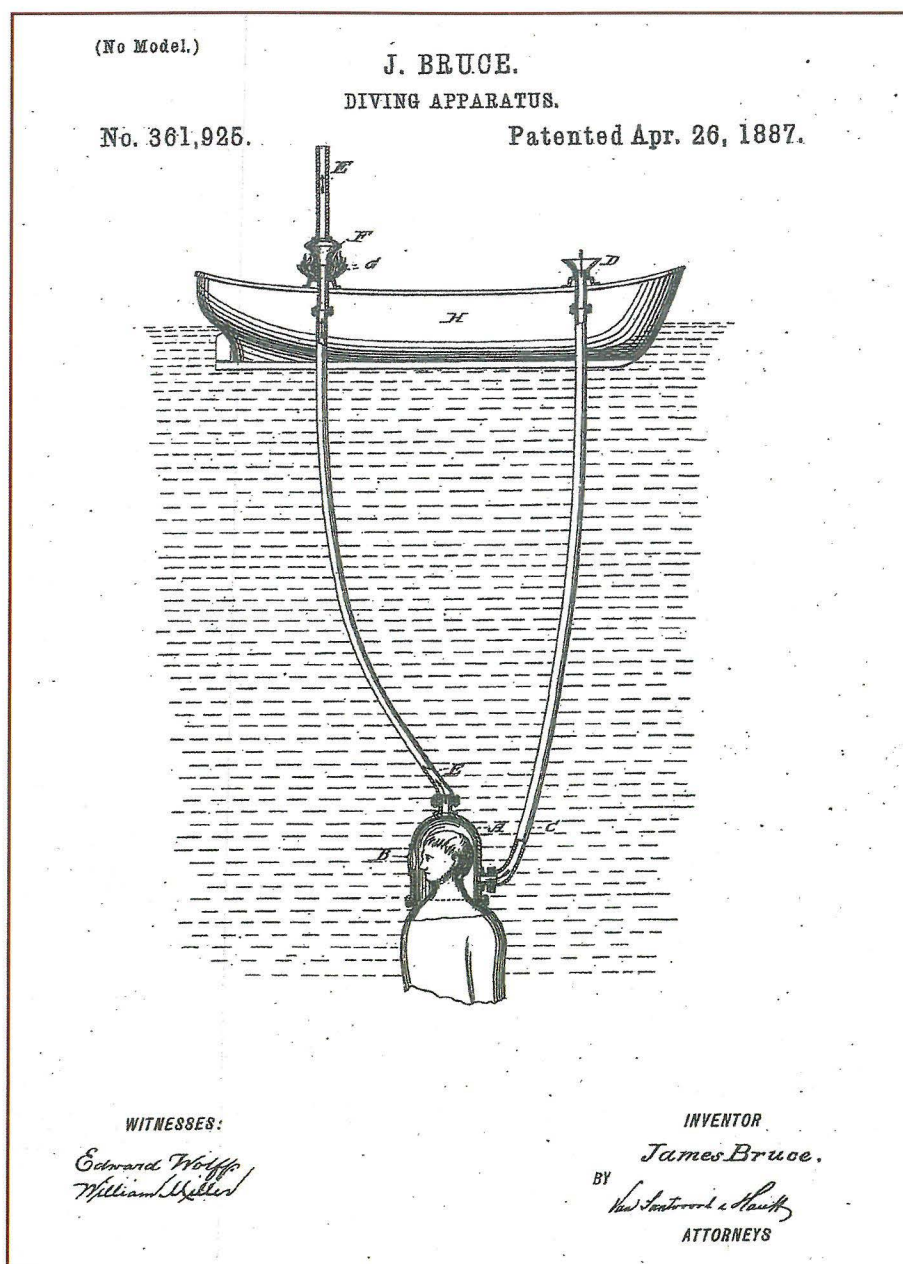
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Two Strange Patents

By James Vorosmarti, MD

This issue we discuss two strange patents which should never have been issued because they both violate a basic law of physics



The first of these is the patent for "Diving Apparatus" by James Bruce of New York City. He filed for a patent on January 12, 1887 and the patent number 361,925 was issued on April 26, 1887. The purpose of the patent was to describe a method of providing a diver with a supply of air without the use of a compressor.

As the drawing shows, fresh air was to be admitted through a hose on the surface leading to the diver's helmet. The force to get this air to the diver was a fire built in and around a metal structure on the surface. This surrounded the end of the exhaust hose, heating it and the air in it thereby causing a current of air upward and out of the helmet and drawing cool air down to the diver.

The patent specifically states that the diver was in only a helmet or helmet with a jacket, so there is no question that this was not designed for a one atmosphere system.

A similar system was patented by Frank Vaughan of Elizabeth City, NC, for a "Submarine Diving Apparatus" filed on February 28, 1889 and issued on October 15, 1889, number 413,000. The purpose of this system was to not only provide air to the diver without a compressor but also to provide underwater lighting.

The basis for this system was a large rigid tube mounted in a hoisting mechanism on a vessel so that it could be lowered to the vicinity of the diver. By adding or removing sections, the rigid tube could be made longer or shorter depending on the circumstances.

At the bottom of this tube was a glass sphere to contain a lamp, presumably one using kerosene. The upper part of the glass sphere was to contain mirrors to reflect more light toward the area around the diver. To the bottom of this sphere was connected a flexible hose to serve as the exhaust side of the breathing circuit, with the exhaust air rising through the rigid tube to the surface.

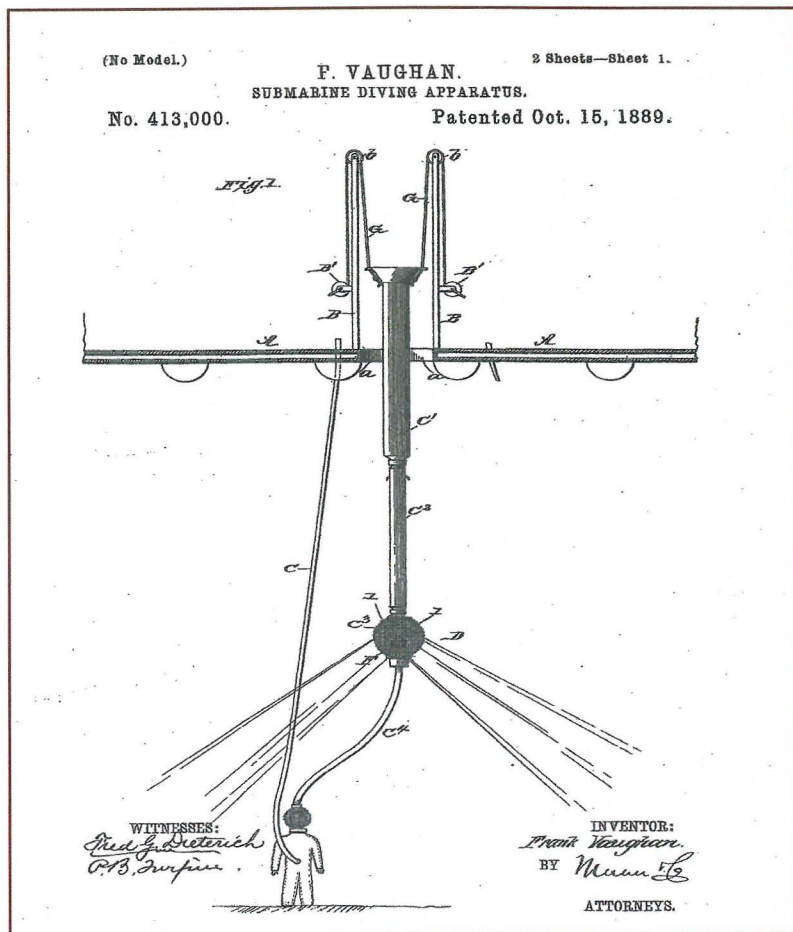
The air intake was through another hose

from the surface to the diver's suit. The heat from the lamp would "rarefy" the air causing it to rise and draw fresh air into the suit. In another version, the lamp sphere was inserted into the circuit between C¹ and C³, with C⁴ leading to the diver's hose. This version was to provide light to a larger area. The patent states that the diver may be wearing a usual diving dress or only a helmet, or that it may be used with an enclosure or casing, presumably a caisson or bell.

The obvious flaw of course is that unless the diver was in a one atmosphere enclosure, as soon as he was submerged the water pressure would immediately rush in and drown the diver. Even if the suit or other enclosure were a one atmosphere system I think it would be extremely unlikely that the system could provide enough air flow in the system to support the diver's life.

Why anyone would even think of such a system when adequate compressors were available is an obvious question. It is apparent that neither the patentees nor the patent examiner knew anything about basic physics or diving.

There is no evidence that either system was built or tried experimentally—and a good thing too. Another question is why two such similar patents should be allowed so closely together in time. I have not researched what time limits there were on patents at the time, so patent protection could have been much shorter than it is now. 8



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By Leslie Leaney



Miller Dunn Style 2 Divinhood

A very clean style 2 with the wider shoulder wings. Port frame stamped B163. Interior painted a cream/white color. The helmet came with four weights and a Miller Dunn No. 1 shallow water pump with handle. The helmet appeared to be in excellent condition with traces of tinning on it, as seen, and was very well photographed and described. Sold \$7,500.



Siebe Gorman & Co. Ltd. 6 bolt Admiralty Pattern

Matched serial # 15,889. The helmet appeared to be in good condition with a few working dings and dents to the crown. It was missing one of the faceplate knobs and five of the six nuts from the straps/brails. Both neck rings and both straps were stamped 15,889 and the front port frame was stamped AP 7985. The bonnet retained the wiring for the communications. The manufacturer's plaque was a little worn and faded. The seller was an HDS member and provided his usual high quality series of photos which are always appreciated. Sold \$4,451.



Morse USN Mark V

Serial #5752, date 3-10-44, plaque

number 801. A small volume Mark V with the bonnet showing a patina and the breastplate appearing to be painted a gold/



copper color with the finish flaking. Appeared complete, missing some port guard retaining screws, and in good condition with a modification to the exhaust. All matched serial numbers. Located in Israel. Sold \$5,100.

Reproduction Poseidon 3 bolt

A copper bonnet with USN Mark V style ports, including a hinged front port, with a cast (probably) brass breastplate.

Described as "an authentic museum quality diving helmet circa 1940s" this piece was available from an auction house which provided numerous good quality photos. These Poseidon models have been around for a couple of decades and are—or maybe were—made in Asia. Most collectors would recognize it for what it was but someone paid \$1,700 for it.





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To order, or for further details, contact Steve Kushner at products@hds.org or 702-485-5676.

Ludwig von Bremen 3 bolt bonnet

Although not a complete helmet, I thought I'd include this piece as it is unlikely that one would ever turn up in an American auction. The listing stated that Ludwig von Bremen was the first German company that produced diving helmet equipment circa 1870. Although showing some modifications to the original placement of components, the bonnet retains the inlet elbow for the Rouquayrol Denayrouze demand regulator and air reservoir. One of the faceplate handles appeared to be

a steel bolt screwed into the frame. The English text on the listing was minimal but did note that the bonnet came from the estate of a professional diver in Kiel. This listing was a change from the usual German fare of Draeger and the odd Hagenuk helmets that we are familiar with in America, and hopefully the new HDS Germany will be able to uncover more information on these rarer German items. Located in Munich, Germany, the bonnet drew 18 bids selling for Euro 3,664, which at the time of the sale was approximately \$4,912.



Schrader Brooklyn N.Y. 3 light commercial helmet

Serial number 1033. Appeared to be in complete condition with what looked to be a hole in the bonnet shell below the left lashing eye. There appeared to be little wear on the shells but their uneven finish gave them the look of perhaps being sand-blasted. The straps retained a patina that was inconsistent with the rest of the brass components, which looked like they had been cleaned. The protective grill on the front port appeared to have been soldered or glued to the faceplate rim and was missing the retaining screw lugs. There was no locking chain or pin and part of the exhaust retaining bracket was missing. On the plus side there were few dents in the shell and the weight lanyard hooks were intact. The description as a "Commercial Mark V" was obviously incorrect, but the seller provided several good clear photos. Located in Israel. Sold \$4,191.



Schrader Brooklyn N.Y. USN Mark V

Serial # H415, dated Sept. 3, 1918. The helmet showed a good patina and appeared to be in complete but worn condition. There were perhaps some solder repairs to the bonnet shell and the faceplate door and hinge securing bolts were not original. There was a break line in the patina below the breastplate neck indicating that the helmet may have been dropped. The seller listed the year of manufacture as 1916 which might have been due to the stamping of the year in the manufacturer's plaque being damaged. Regular readers will recall the recent sale of Schrader USN Mark V serial # H19 dated June 15, 1917 that was recorded in the *Helmets of the Deep* column in



issue 64. That model sold for \$15,100. Research to date indicates that 1917 seems to be the first year that Schrader manufactured the USN Mark V helmet. Early Mark V Schrader helmets serial #H20, also dated June 15, 1917 and serial # H31 dated July 2, 1917 were recorded in *The Mark V Column*, by Leslie Leaney, in *Historical Diver*, issue 1, Summer 1993. Helmet serial # H415 was actually part of a batch that included helmets #H406 and #H423 that Schrader produced on September 3, 1918. The helmet was located in Israel and only drew 9 bids, selling for \$4,650. That price seemed to indicate that collectors had reservations about this helmet which would normally be expected to sell in a range of over twice that amount.



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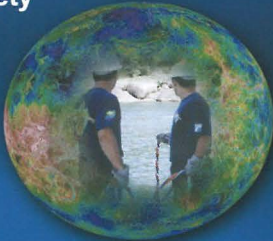

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By Ed LaRochelle

DIVE WATCHES



BLANCPAIN

Two highly collectable models, the Aqua Lung 1000 feet, first introduced by U.S. Divers in 1957, and the Aqua Lung with date window and no radiation symbol, first introduced by U.S. Divers in 1968, as the Aqua Lung Professional. The Aqua Lung 1000 feet serial number 2,489, sold for \$5,000, and the Aqua Lung with no radiation symbol, serial number 201,077, sold for \$5,766.



ENICAR

SEAPEARL AND SEAPEARL 600

Among the first of the watch companies to advertise directly to skin divers in the 1950's was Enicar. The Seapearl was known as the SPORT watch in the 1940's, and was durable, water proof and easy to read at night because of its heavy radium glow. Models like the 100 Fathom and Seapearl 600 are very desirable collectables today. This is especially true for the Healthways 100 Fathom, that was made available for a short period from 1956 to 1959, and only sold through Healthways dealers. Two recent auctions realized a modest price of \$318 for the Healthways 100 Fathom, and \$312 for the Seapearl 600, both shown above.

AMF VOIT

CHRONOGRAPH WATCH

This early 1960's model has the first of the AMF Voit labels printed on the dial. The watch and bezel are the same as the Aqua Lung model featured in the U.S. Divers 1962 catalog. This watch sold for \$500.



DIVE KNIVES

BUCK "NEMO"

The Buck NEMO continues to be popular among scuba collectors and knife collectors. Shown here are two of the late 1960's model that did very well in recent auctions. The Nemo on the left sold for \$450 and the one on the right sold for \$700.



SEA NET MODEL B-31

This primitive looking skin diver's knife is one of two models that Sea Net offered during the late 1940's and into 1950's. Sold for \$100.

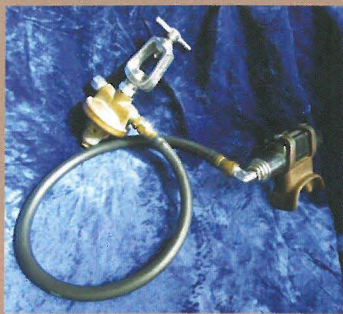


REGULATORS



HEALTHWAYS

This regulator was to become the pro line for Healthways and they named it Scubapro, but before they could print a catalog or start production Healthways went out of business. For more information on this regulator refer to issue #64 of the *Journal of Diving History*. This regulator is circa 1963 and sold for \$418.



ROSE PRO MODEL 56

This Model 56 came with the Dockson pressure regulator, and was not chromed. It was a nice example of the early Rose Aviation regulator called Rose Pro. For more information on this regulator refer to issue #65 of the *Journal of Diving History*. This regulator is circa 1956 and sold for \$169.



SPORTSWAYS

Waterlung two hose regulators always draw many bidders, and as you can see, also bring respectable prices. The Waterlung Dual-Air serial number D-02524, circa 1961/62, sold for \$474. The Waterlung Hydro-Twin serial number H-00413, circa 1963, sold for \$455.

U.S. DIVERS



MISTRAL

The last of the DX over-pressure breather parts were painted blue, stickered MISTRAL and had a very short run. They were not intended to be in the line up of regulators cataloged for 1956 and 1957, therefore this regulator was offered directly to retailers from their U.S. Divers regional representatives. This one, missing hoses and mouthpiece, sold for \$1,325.



AQUA LUNG (GREEN LABEL)

The Aqua Lung green label regulators were produced for part of 1952 and 1953. By the serial number of this regulator it appears to have been manufactured near the production end of 1953. Even though this regulator came with the wrong hoses and mouthpiece, it still commanded a lot of interest and bidding, selling for \$1,025.

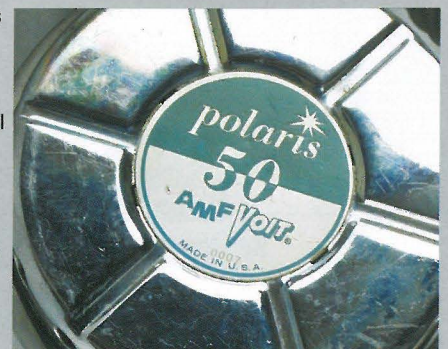
ROYAL MISTRAL

The Royal Mistral is a beautiful regulator to look at, and when one comes to auction it always draws lots of bidders. These two regulators were circa 1965 with very low production numbers, and did very well at auction. This one, serial no. BM-1035, sold for \$445.



VOIT

Several V22 Polaris 50's have come to auction in recent months. This one pictured has a serial number of 0007, that connects well with the 007 movie *Thunderball*. It was circa 1962 and sold for \$334.



HDS Canada Director Receives Lifetime Achievement Award



By Dr. Phil Nuytten

(Above) The BC Undersea Pioneers Table (L-R): Helmut Lanziner, Willie Wilhelmsen, Jim McFarlane, Phil Nuytten, Al Trice, Mike McDonald, and John Whitney.

(Below) Dr. Jim McFarlane receives the lifetime achievement award from Jonathan Chapple (Diver's Certification Board Canada).



Dr. Jim McFarlane is a long-time member of the board of directors of HDS Canada and a passionate historian of technological development in Canada. As the keynote speaker at the Canadian Underwater Conference, held in Vancouver, BC in October 2011, Dr. McFarlane gave an excellent presentation titled, "Sub-sea development in British Columbia."

The talk featured the history of a group of B.C. subsea companies that defined much of the Canadian Underwater technology from the 1960s to current state of the art products and techniques. Through a series of visuals, Dr. McFarlane traced the evolution of B.C. companies such as International Hydrodynamics, his own company International Submarine Engineering, Atlantis Submarines, Horton Maritime Explorations, Mesotech Systems, Imagenex, Can-Dive Services Ltd, Hard Suits Inc., Nuytco Research Ltd., Inuktun Systems, among others.

A number of the personnel from these companies were present and recognized at an Ocean Pioneers table. Dr. McFarlane's presentation was warmly received by a large audience comprised of divers (both sport and commercial) undersea technologists, underwater

equipment manufacturers and oceanographers. Later, at the Canadian Underwater Conference's Annual Awards Banquet, Dr. James McFarlane, OC, CD, P.Eng, FCAE was the recipient of the conference's Lifetime Achievement Award for his pioneering work in deep submersibles and ROVs through his company International Submarine Engineering (ISE).

McFarlane founded ISE in 1974 and has been deeply involved in the design, construction and operation of autonomous manned underwater vehicles, remotely operated vehicles and untethered, remotely operated vehicles.

In 2009, ISE was inducted into the Offshore Energy Hall of Fame and was also named as one of Canada's top 40 defense contractors. Jim McFarlane has served on many committees for international undersea conferences and has been honoured as a guest speaker at conferences around the world.

He is the recipient of numerous awards and honors, including induction as an officer of the Order of Canada, BC Science Council Award for Industrial Innovation, the BC Science and Engineering Gold Medal and the IEEE Vancouver Centennial Award in 2011.

HDS Canada is proud to count Jim McFarlane as one of its directors and offers congratulations on his latest award. 🐬

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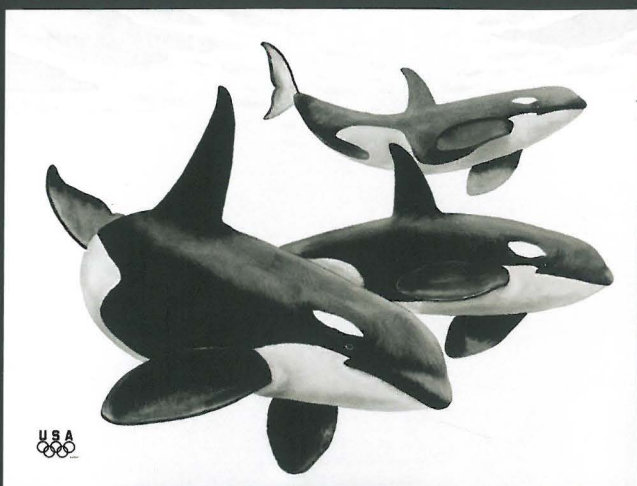
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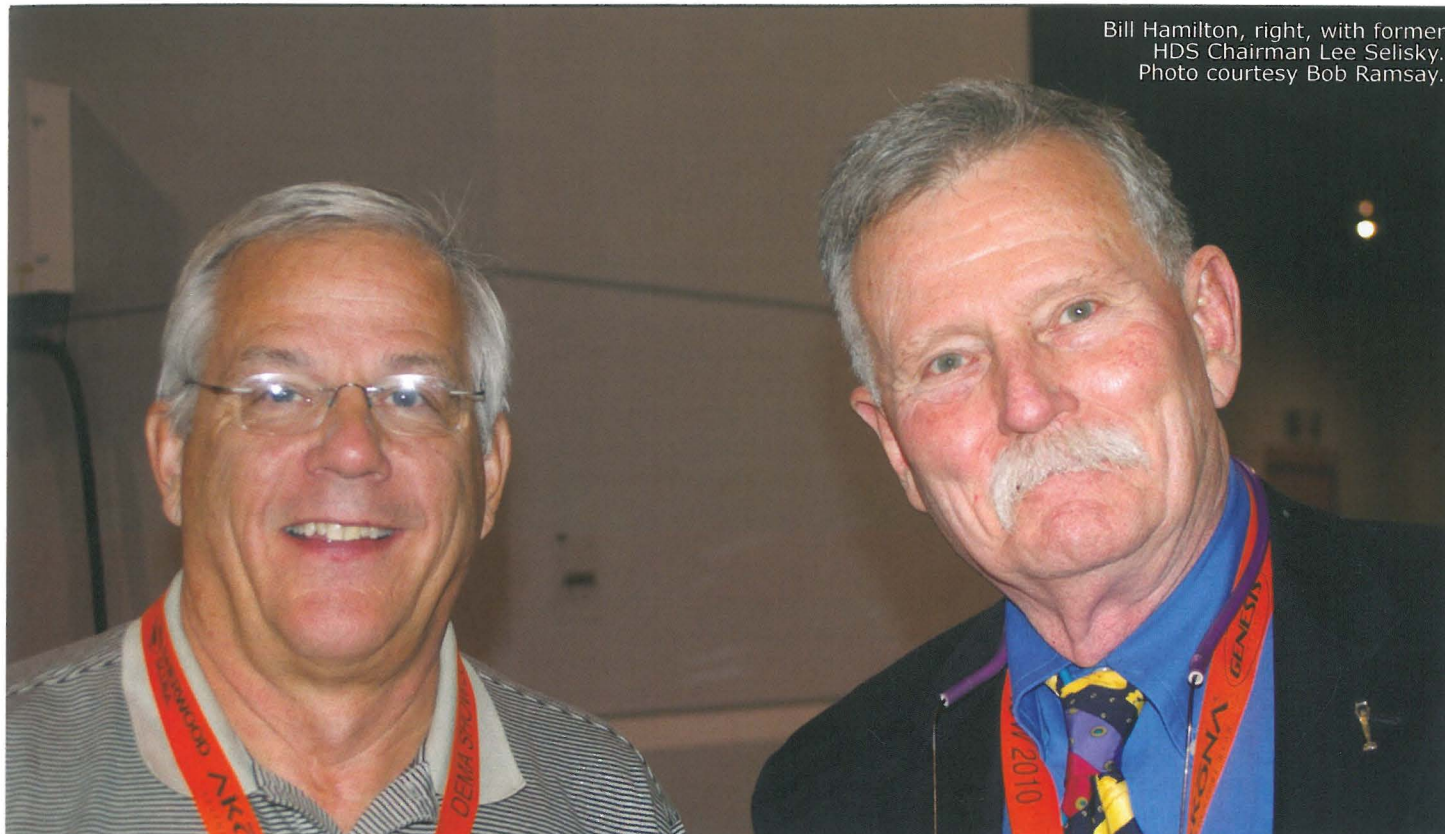
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R.W. "Billy Bob" Hamilton, Ph.D.

1930-2011



Bill Hamilton, right, with former HDS Chairman Lee Selisky. Photo courtesy Bob Ramsay.

It's often said that people mellow with age. The exact opposite is true of R. W. "Billy Bob" Hamilton. Billy Bob productively used every waking minute of every day. To us he was husband, father, grandfather, brother, brother-in-law, uncle, partner, mentor and friend. To some of you he was the person who encouraged you to be a part of the church and community. To others he was the one who pushed you to be a better person, to challenge yourself to learn something new every day and, of course, to do it all with correct grammar. He was always the life of the party. It's best said that Billy Bob was "larger than life." Here is most of his 2009 resume since we found it nearly impossible to edit. His most recent project was providing tables to the MTA for the Long Island Railroad connection tunnel to Grand Central Station. And, by the way, know any other 81-year-olds who are still updating their resumes?

Dr. Bill Hamilton is a physiologist with over four decades of specialization in diving, aerospace, and environmental physiology, with particular interest in decompression, breathing gases, and the effects of pressure. Ten of these years (1964-1974) were as a scientist and director of a leading environmental physiology and diving research laboratory. Since 1976 Dr. Hamilton has been principal of his consulting firm, Hamilton Research, Ltd. His work here has included the development and assessment of decompression and operating procedures for commercial, scientific, recreational, and military diving, for tunnel and caisson work, and for aerospace and hyperbaric medicine, both in the U.S. and internationally. He has also done safety and operational planning, technical training programs, market surveys, and successful collaboration with attorneys as consultant and expert witness. He has served as consultant to the Swedish Defense Research Agency ("FOI", formerly "FOA"), the German GKSS laboratory, the Japanese MSDF (Navy), the Norwegian



Underwater Institute, and others, in decompression, diving safety, and operational planning. He has been consultant and advisor to NOAA's Aquarius sea-floor habitat project, and he has produced decompression tables for use with and for evacuating the habitat. He prepared trimix (O₂-He-N₂) tables for NOAA's research on the USS Monitor, and this led to his production of a set of trimix tables for the NOAA Diving Program.

EXPERIENCE IN RESEARCH AND OPERATIONS

In 1964 Dr. Hamilton joined Union Carbide Corp., in the laboratory serving as the research arm of Ocean Systems, Inc. He was both physiologist and subject in early laboratory "dives," which led in 1965 to the first manned saturation exposure to the continental shelf pressure of 200 msw (metres of sea water), or 21 atmospheres. He pioneered the study of neon as a component of breathing gases, studying human performance and decompression aspects of this gas to pressures as great as 400 msw. He advocates use of neon as the ideal inert gas for long-duration space flight. He collaborated in neon's use offshore in an unprecedented series of deep commercial dives, and in exploring its value when used with closed-circuit breathing systems.

The hyperbaric chamber fire safety program with colleagues in his lab produced the fundamental data universally applied by both the diving and hyperbaric medical communities, and which have been used as guidelines by NFPA (the National Fire Protection Association) and other standards organizations. His concept of the "zone of no combustion" led to the development of safe atmospheres and breathing gases for underwater habitat welding, and he worked offshore to help implement this idea.

He led Ocean Systems' Access laboratory program, which involved rapid compressions to the pressure of 300 msw (1000 feet of sea water) using nitrogen to mitigate compression effects ("HPNS"), with

excursions from saturation in that pressure range.

He worked extensively on a project with Shell in Norway to develop capabilities for operational diving to 450 msw depths. He has been Principal Investigator in two cooperative programs at the Chinese Underwater Technology Institute, Shanghai, on repetitive saturation-excursion diving projects, Chisat I (1988) and Chisat II (1995); the latter was the first extensive study of excursions with O₂-He-N₂ "trimix" breathing mixtures from a nitrogen-based habitat environment. He has studied the physiology and risks of breathhold diving. He re-discovered the technique of "lung packing" or "buccal pumping" as a means of increasing lung volume.

Dr. Hamilton, sometimes with colleagues, has developed many types of decompression procedures for a wide variety of diving and exposures to pressure, ranging from submarine free ascent to space travel to deep commercial diving, including detailed instructions for treatment of decompression sickness. This work has evolved into a comprehensive computer program DCAP, which has been acquired by the British, Swedish, Japanese, Finnish, Israeli, Italian, and U.S. navies, DCIEM, the German GKSS facility, the Japanese lab JAMSTEC, hyperbaric treatment facilities, and commercial companies. DCAP and related programs have provided decompression tables used by such as NOAA, NASA, Norwegian Underwater Institute, U.S. Navy labs, Karolinska Institute, archaeological research projects, commercial operations, accident analysis, altitude diving projects, ascent to altitude, and other special operations, including developing tables for deep air dives with the Swedish Navy. For NASA Dr. Hamilton developed excursion and decompression procedures for use with a hyperbaric lock on a space station. His work with decompression tables, physiological effects of gases, and methods of managing exposure to oxygen were instrumental in the

origination and development of the new field of "technical diving." He has helped apply this to the unique decompression and operational problems of deep cave diving, specifically with O₂-He-N₂ trimix, on several record-setting cave exploration dives with scuba over the depth range of 60 to beyond 250 msw. He has helped in the development and assessment of several diver-carried decompression computers, and with colleague Dave Kenyon is presently completing a new and original dive computer, DCAP-X, that incorporates the DCAP computational program.

Bill Hamilton was a pioneer in the development and later operational application of nitrogen-oxygen (nitrox) saturation excursion procedures, including those in the NOAA diving manual as well as NOAA's Repex procedures for repetitive excursion diving, which also include a serendipitous but now widely applicable algorithm for managing long term exposure to oxygen. He has assisted the U.S. Navy in operational application of Repex techniques. He has worked on development of rebreathers, including especially rebreather decompression procedures and integrated computers, safety practices, and instruction materials, and he has carried out training and intensive manned testing. He designed an effective breathing gas heat regenerator for use in a stranded diving bell. He is currently working on the Brightwater West tunneling project for King County, Washington, where he is responsible for decompression tables including those with trimix, and other aspects of physiological safety.

SERVICE

Dr. Hamilton is past Chairman of the Board of Directors of DAN, Divers Alert Network, and he has served on its Decompression Advisory Board. He helped guide this important organization through a major transition period. He is a charter member of the Undersea and



Hyperbaric Medical Society (UHMS, formerly UMS), a former officer, Director and member of several committees. He has served as Editor of UHMS's newsletter, *Pressure*, and on the editorial board of its journal. He has served on the safety board of NOAA's Undersea Research Program; NASA's Space Station Hyperbaric Chamber committee and an environmental health workshop for the space station and for travel to Mars; the Safety Board of the Catalina Hyperbaric Chamber; the Medical Advisory Panel of the Harbor Branch Oceanographic Institution; NAUI's technical diving committee; the National Board of Diving and Hyperbaric Technology; and NFPA's Hypo/Hyperbaric subcommittee. He is a member of a US-Japan Cooperative Program, originally UJNR but now renamed. With colleagues he has prepared safety and training materials for NASA on the weightlessness simulation facilities at both Johnson and Marshall space centers. He served as a consultant to OSHA in preparing national standards for U.S. commercial diving. He was tasked by the U.S. Navy to perform a worldwide survey of air and air-with oxygen diving. He serves as a reviewer of scientific papers and proposals.

One of Dr. Hamilton's specialties is "workshops." He has been organizer, chairman, and/or editor of a number of select workshops on specialized topics, and has participated in many others. Those related to decompression cover decompression from deep bounce dives, of tunnel workers, from nitrogen-oxygen saturation dives, and of recreational divers. A workshop on the Validation of Decompression Tables that provides simplified guidelines for bringing new tables into operational readiness may be the most important of these. Other of his workshops include hyperbaric oxygen in emergency medical care, nitrogen narcosis, enriched air diving in both scientific and recreational settings, design and application of dive computers, and

operational dive data.

Major Hamilton was a fighter pilot in the U.S. Air Force and Air National Guard, serving in Alaska during the Korean War and in combat service in Viet Nam, where he earned the Distinguished Flying Cross, Air Medal, and other decorations. As Life Support Officer he helped solve an equipment problem that had caused unsuccessful bailouts. He has been a principal investigator for both USAF and NASA in research on atmospheres for space flight. He was recommended to NASA by the National Academy of Sciences as a Scientist Astronaut. He belongs to both the Aerospace Medical Association, and the Aerospace Physiology Society. He has proposed a radical new idea for protection against very high G- forces in fighter aircraft.

PROFESSIONAL AFFILIATIONS AND RECOGNITION

Dr. Hamilton has received three different awards from the Undersea and Hyperbaric Medical Society, the Stover-Link, Oceaneering, and Craig Hoffman awards, and the Award for Professional Excellence from the Aerospace Industrial Life Sciences Association. He received the first "tekke" award sponsored by aquaCorps Journal. He was awarded the prestigious NOGI Award for Science of the Academy of Underwater Arts and Sciences, and was the recipient of the 2001 DAN Rolex Award. He was selected as Diver of the Year for Science at the Beneath the Sea recreational diving conference, and has proudly received his dunking as Diver of the Year by the Boston Sea Rovers. He has recently received the Colin McLeod award from the British Sub-Aqua Club for his contribution to technical diving. He is a past chairman of the Instrumentation Section of the New York Academy of Sciences, and is a Fellow of the Aerospace Medical Association. His list of memberships includes also the American Physiological Society, Human Factors Society, American

Association for the Advancement of Science, Marine Technology Society, Society for Underwater Technology, South Pacific Underwater Medicine Society, European Underwater and Baromedical Society, the Association of Diving Contractors International, the Canadian Association of Diving Contractors, the Institute of Diving, the American Academy of Underwater Sciences, and Sigma Xi. He was elected to Phi Kappa Phi honorary fraternity, and Mensa. He is a Fellow of the Explorer's Club.

PUBLICATIONS

In addition to numerous scientific and technical papers, reports, and workshops, Dr. Hamilton authored a major article on Life Support in the Encyclopedia Britannica, and has contributed chapters to the UHMS's Underwater Handbook, the Physician's Guide to Diving Medicine, UHMS's Key Documents series, a chapter on mixed gases in Bove's Diving Medicine, and with a coauthor did a chapter on decompression practice for the 5th edition of Bennett and Elliott's Diving Physiology and Medicine. He did a comprehensive chapter on "pressure as a toxic agent" in Patty's industrial hygiene collection, and chapters in other books. He has prepared operational manuals and training materials; significant ones include chapters in the 2001 NOAA Diving Manual, manuals for diving with oxygen-enriched air for NAUI and the YMCA, procedures for avoiding oxygen toxicity, management of decompression sickness, and diving with special breathing mixtures. For the U.S. Navy he prepared a major report covering their SHAD and Nisat experiments. He has made numerous presentations and taught courses to both technical and lay audiences.

Education University of Texas, Austin. B.A., Liberal Arts (Plan II) Texas A&M, College Station. M.S., Animal Breeding University of Minnesota, Minneapolis. Ph.D., Physiology and Biophysics. ●

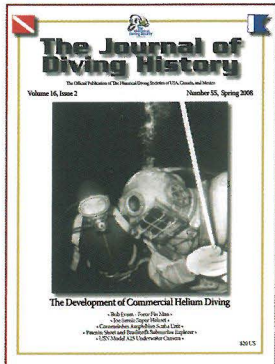
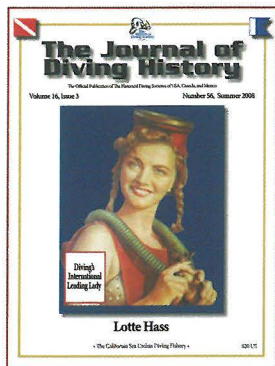
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